

# GREEN AUDIT REPORT (2019 – 2020)

Vellalar College for Women  
(Autonomous)

Thindal, Erode, Tamil Nadu - 638012, India



**Prepared**  
**by**

**NATURE SCIENCE FOUNDATION**

( A Unique Research and Development Centre for Society Improvement)

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*Certificate of Merit*

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**Environment Audit (Eco Audit) / Green campus**

This is to certify that **Vellalar College for Women (Autonomous), Thindal, Erode – 638 012, Tamil Nadu** has been honoured with a “Certificate of Merit” for an outstanding performance in maintaining the Green Campus by undergoing an Environment / Eco Audit on 19th November 2019 having adjudged **9.5 out of 10.0 point scale** by Nature Science Foundation, Coimbatore – 641 004, Tamil Nadu, India.

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## **EXECUTIVE SUMMARY:**

The rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institute which will lead for sustainable development.

Vellalar College for Women, Erode is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reverse the trends. Being a premier institution of higher learning, the college has initiated 'The Green Campus' program long back that actively promotes various projects for the environment protection and sustainability.

The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The methodology include: preparation and filling up of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations.

Green Audit involves several facets including Water Conservation, Tree Plantation, Waste Management, Alternative Energy and Mapping of Biodiversity. With this in mind, the specific objectives of the audit are to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the Departments are in compliance with the applicable regulations, policies and standards. It can make a tremendous impact on student's health and learning, as well as on the operational costs of the institution and the environment.

## 1. Introduction

Green Audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Green Audit' aims to analyze environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. It was initiated with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth of carrying out Green Audit.



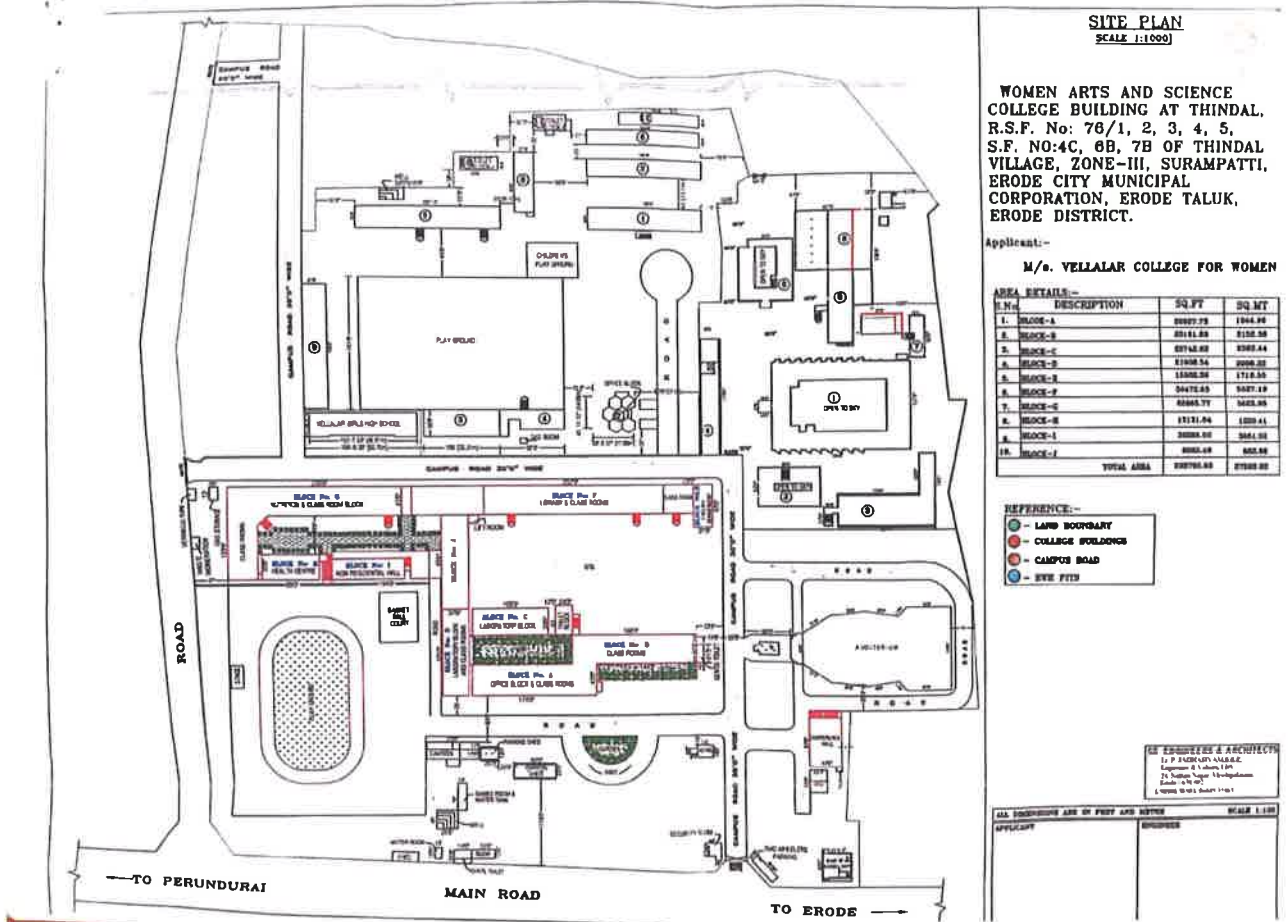
**Figure 1: Green Auditing in Vellalar College for Women**

Green audit is assigned to the criteria 7 of NAAC, National Assessment and Accreditation Council which is a self governing organization of India which declares the institutions as Grade A, B or C according to the scores assigned during the accreditation.

## **1.1 About the College**

Vellalar College for Women traces its roots to the year 1970 when the farsighted visionaries of the soil led a mission to educate and empower the first generation women scholars of the locale, specifically those from rural, underprivileged sections of the society to become leaders and contributors to every sector of the society. For more than four and half decades, the institution has passed many groundbreaking milestones and forged benchmarking traditions eventually evolving into the eye of conscience of the society.

With a sizeable students' strength of 6,000 students in the under-graduate and the post-graduate programmes in the Aided and the Unaided sections, the institution espouses the cause of 'Education for Life' enabling every graduating scholar to find her niche and to strike a successful balance between academic life and otherwise. The institution's cogent vision and mission of consummate scholastic service has enabled it to evolve into College with Potential for Excellence in 2010 and currently accorded with the II turn of CPE funds which speaks for its consistency in academic excellence. Conferred with the status of autonomy in 2007 and re-accredited by NAAC with 'A' grade in 2015 in the third cycle with the CGPA of 3.43 the institution continues to equip the students with intellectual, moral, spiritual and physical credentials to lead a purposeful life and to effect a positive difference in the world they cohabit.



**Figure 2: College Map**

The institution’s functional dynamics, its core and non-core programmes cutting across academic disciplines, green practices, co-scholastic pursuits and outreach activities groom the campus community to take up responsibilities, orient them with insights into community services and sensitize them to social issues. The sprawling campus with its comprehensive infrastructure viz. the library with DELNET, INFLIBNET and online back-up facility, computer laboratories, smart class rooms, seminar halls, MathLab, Research Lab and the English Language & Career Laboratory and the Communicative Skill Centre contribute to the inclusive growth of the scholars.

This academic alliance has launched Vellalar College for Women, Erode, as the Nodal Resource Centre of Spoken Tutorials, IIT Bombay, in Erode region.

The college has also adopted the ‘Green Campus’ system for environmental conservation and sustainability. There are main three pillars i.e. zero environmental foot print, positive impact on occupant health and performance

and 100% graduates demonstrating environmental literacy. The goal is to reduce CO<sub>2</sub> emission, energy and water use, while creating an atmosphere where students can learn and be healthy. The 'Green Campus' has been active for a long time, students and faculty are actively involved promoting the Green initiative through various clubs and various projects. The college administration works on the several facets of 'Green Campus' including Water Conservation, Tree Plantation, Waste Management, Minimal paper work, Alternative Energy and Mapping of Biodiversity.

## **2. Objectives of the Study**

The main objective of the green audit is to promote the Environment Management and Conservation in the College Campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

- To introduce and aware students to real concerns of environment and its sustainability
- To secure the environment and cut down the threats posed to human health by analyzing the pattern and extent of resource used in the campus.
- To establish a baseline data to assess future sustainability by avoiding the interruptions in environment that are more difficult to handle and their corrections requires high cost.
- To bring out a status report on environmental compliance.

## **3. Methodology**

In order to perform green audit, the methodology included different tools such as preparation of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. The study covered the following areas to summarise the present status of environment management in the campus:



- Water management
- Energy Conservation
- Waste management
- E-waste management
- Green area management

## **4. Observations and Recommendations**

### **4.1. Water Use**

This indicator addresses water consumption, water sources, irrigation, storm water, appliances and fixtures. A water audit is an on-site survey and assessment to determine the water use and hence improving the efficiency of its use.

#### **a) Observations**

The study observed that well is the major source of water. Water is used for drinking purpose, canteen, toilets, laboratory and gardening. During the survey, no loss of water is observed, neither by any leakages, nor by over flow of water from overhead tanks. An automated alarm system is installed to alert the filling of tanks, thus avoiding wastage of water. The data collected from all the departments is examined and verified. For the purpose of gardening recycled water, collected from various departments are used, thus minimising water usage.

Seven rain water harvesting units are also functional for storing and reuse. During water scarcity in summer season, the waste water is collected and it is used for the maintenance of plants, lawns, etc,.This is one of the unique steps towards greening practices.Sometimes, they buy water from outside.

There are totally **9 Water Tanks, 11 Water Coolers,** and **204 Toilets** in the Campus. The methods and implementation of waste water recycling is in progress and is expected to be completed in few months.



**Figure 3: Rain Water Harvesting Pit in the Campus**

### **b) Recommendations**

- Gardens can be watered using drip/sprinkler irrigation system to save water.
- Minimize wastage of water and use of electricity during water filtration process, if used, such as RO filtration process and ensure that the equipment's used for such usage are regularly serviced and the wastage of water is not below the industry average for such equipment's used in similar capacity.
- Ensure that all cleaning products used by college staff have a minimal detrimental impact on the environment, i.e. are biodegradable and non-toxic, even where this exceeds the Control of Substances Hazardous to Health (COSHH) regulations.
- If recycled water is used for all the toilets, considerable amount of water can be saved.

## 4.2. Energy Use and Conservation

This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliance, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment.

### a) Observations

Energy source utilized by all the departments and common facility centre is electricity only. All the departments and common facility centres are equipped with Tube Lights and LED/Mercury Lights. There were totally **1107 ordinary lights** and **256 CFL LED/Mercury** lights in the campus.

Besides this, solar lights are also installed in few parts of the hostel in the campus as an alternate renewable source of energy, which accounts to **6 solar lights** in number. Equipments like Computers are used with power saving mode. In science department like Physics, Chemistry, Mathematics, Botany and Zoology electricity was shut downed after occupancy time is one of green practices for energy conservation. Apart from this, 4 Solar Water Heaters have been installed in the Hostel Campus.

### b) Recommendations

- Renewable source of energy like solar can be installed more in the campus, thus contributing more to a sustainable environment.
- CFL Bulbs can be installed in all parts of the campus, thus reducing the consumption of energy.

### **4.3. Waste Generation**

This indicator addresses waste production and disposal of different wastes like paper, food, plastic, biodegradable, napkins, construction, glass, dust etc and recycling. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair, and reuse. Solid waste generation and management is a burning issue. Unscientific handling of solid waste can create threats to everyone. The survey focused on volume, type and current management practice of solid waste generated in the campus. The different solid wastes collected as mentioned above.

#### **a) Observations**

Waste generation from tree droppings and lawn management is a major solid waste generated in the campus. The waste is segregated at source by providing separate dustbins for Bio-degradable and Plastic waste. Segregation of chemical waste generated in chemistry and zoology laboratories is also practiced. Single sided used papers reused for writing and printing in all departments. Important and confidential reports/ papers are sent for pulping and recycling after completion of their preservation period. Very less plastic waste is generated by some departments, office, garden etc and collected Plastic waste is sold outside for scrap. Metal waste and wooden waste is stored and given to authorized scrap agents for further processing. Few glass bottles are reused in the laboratories. The food waste from main canteen and mess is used or sent for vermin-composting.

The institute has adopted vermi-culture composting in culture house in the campus. The main purpose of this is to reduce disposable waste in the college campus. After complete process of vermi-composting, it is used as manure in the garden and lawns.

Apart from the above mentioned wastes, being a women's college, napkin wastes are found to be high. This issue has been managed well by the institution by installing two incinerators, one each for College campus and other one for Hostel.



**Figure 4: Vermi-compost in the College campus**



**Figure 5: Incinerator in the College campus**

## **b) Recommendations**

- Reduce the absolute amount of waste that it produces from college, students, staff, hostel and offices.
- Make full use of all recycling facilities provided by City Municipality and private suppliers, including glass, cans, white, coloured and brown paper, plastic bottles, batteries, print cartridges, cardboard and furniture.
- Single sided papers can be used for writing and photocopy.

#### **4.4. E-Waste Generation**

E-waste can be described as consumer and business electronic equipment that is near or at the end of its useful life. This makes up about 5% of all municipal solid waste worldwide but is much more hazardous than other waste because electronic components contain cadmium, lead, mercury, and Polychlorinated biphenyls (PCBs) that can damage human health and the environment.

##### **a) Observations**

E-waste generated in the campus is very less in quantity. The cartridges of laser printers are refilled outside the college campus. The E- waste and defective item from computer laboratory is being stored properly. The institution has a well managed e-waste disposal system. The institution by coordinating with a e-waste management company, disposes all its electronic waste promptly and securely, contributing towards sustainable environment.

##### **b) Recommendations**

- Use reusable resources and containers and avoid unnecessary packaging where possible.
- Can purchase recycled resources where these are both suitable and available.
- The institution can conduct awareness programmes to students and staff regarding E-waste Management with the help of various departments.

## 4.5. Green Area

This includes the plants, greenery and sustainability of the campus to ensure that the buildings conform to green standards. This also helps in ensuring that the Environmental Policy is enacted, enforced and reviewed using various environmental awareness programmes.



**Figure 6: Medicinal Plant Garden in the College**

### a) Observations

Campus is located in the vicinity of approximately **956 trees, 123 under shrubs and shrubs, 376 Herbs, 30 Climbers and Twinners, 16 Medicinal Plants and 6 types of Grass Species**. Totally there are **1617 trees** in the campus. The campus also attracts **54 Bird Species** of various categories.



**Figure 7: Board Showing Tree Count in the Campus**

Various tree plantation programs are being organized in the college campus and surrounding villages through NSS unit. This program helps in encouraging eco-friendly environment which provides pure oxygen within the institute and awareness among villagers. The plantation program includes various type of indigenous species of ornamental and medicinal wild plant species.



**Figure 8: Board Showing Bird Count in the Campus**



## **b) Recommendations**

- Periodically review of the list of trees planted in the garden, allot numbers to the trees and keep records. Give scientific names to the trees.
- Promote environmental awareness as a part of course work in various curricular areas, independent research projects, and community service.
- Create awareness of environmental sustainability and takes actions to ensure environmental sustainability.
- Establish a College Environmental Committee that will hold responsibility for the enactment, enforcement and review of the Environmental Policy. The Environmental Committee shall be the source of advice and guidance to staff and students on how to implement this Policy.
- Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings.
- Celebrate every year 5<sup>th</sup> June as 'Environment Day' and plant trees on this day to make the campus more Green.

## 5. Activities and Programmes done by the College towards Environmental Protection

- An **Orientation Programme** was organized for the fresher's of the Bio diversity club on 15.07.2019 and the objectives of the club were discussed.
- On 29.07.2019 "**International Tiger's Day**" was observed in the College campus and the programmes like message to college students, tying Rakhi, displaying placards etc. were done.
- On 08.08.19, an awareness programme on "**Water Resource Management**" was organized with JAL SHAKTHI ABIYAN, for Public and College students, to create awareness about Conservation of Water Resources.
- A field trip to "**sericulture farm**", Athani was organized for the club members on 06.09.2019 to acquire knowledge on the rearing techniques of Silkworm.
- An orientation programme was organized for the Enviro Club members on 09.09.2019 Dr. G. Jayanthi Assistant Professor in Botany addressed the students about the need to conserve nature.
- Ozone Day was celebrated on 16.09.2019 by the Enviro Club. The volunteers distributed the pamphlets with "Ten Tips To Prevent Global Warming" to all the students and fixed posters with this message in all the classrooms of the college campus to instill awareness about Ozone layer.
- "**Wildlife week**" was observed by the club on 03.10.2019. In the connection, a **trekking** was organized at Sathyamangalam Tiger Reserve, Hassnur to create awareness about the Wildlife
- The club organized a **Cleaning Programme** on 04.10.19, at Vellalar College for Women campus. The volunteers of the club create an awareness among the students regarding cleanliness and its benefits.
- In the continuation of wildlife week celebration the students attended an **awareness programme on "Wildlife conservation"** organized by the Forest Department, Sathyamangalam Forest Range on 09.10.2019.
- On 12.10.2019 a visit was organized to "**Bird Sanctuary**", **Mukaneri**, Salem. The student's enthusiastically visited and observed different bird species.
- As a part of **BHARAT UNNATH ABIYAN**, villages were adopted the college and taken care of the villages. The villages are as follows:  
Vallipurathanpalayam, Veppampalayam, Vallipurathanpalayam,

Veppampalayam, Thindal, Vannangatuvalasu, Villarasampatti, Vallipurathanpalayam, Veppampalayam, Thindal, Vannangatuvalasu, Villarasampatti, Veerappam palayam, Semampalayam, Sengodampalayam, Nathakattupalayam, Rayapalayam, Koorapalayam.

- As a part of the curriculum, **Environmental Studies** have been introduced as paper for the UG students to create awareness and knowledge about the environment to the students.
- A Faculty has been assigned as Green Auditing Co-ordinator by the College, thus contributing towards Green Campus Activities.
- To educate the students in environment related issues and problems a **"GREEN SOCIETY"** has been setup and several programmes and activities have been conducted.
- An **"INSTITUTIONAL SWACHHTA COMMITTEE"** has been setup constituting Principal as a Nodal Officer and 1 Faculty Coordinator and 6 Faculties as Committee members.
- The Management has also appointed Estate Managers, Agricultural Engineers and Staffs thus contributing towards Green Campus Initiative.
- The National Cadet Corps in the Campus are also involved in Green initiative activities inside and outside the campus.
- A Committee has been setup constituting the faculty members for the purpose of **"Hygiene Maintenance"** in the campus.

## **5. Conclusions**

Considering the fact that the institution is a well established, long time run organisation with good reputation, there is significant environmental research both by faculty and students. The environmental awareness initiatives are substantial. The installation of rain water harvesting system, vermin-composting practices, incinerator and Bio-gas are noteworthy. Besides, environmental awareness programmes initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of waste management using eco-friendly and scientific techniques. This may lead to the prosperous future in context of Green Campus & thus sustainable environment and community development.

As part of green audit of campus, we carried out the environmental monitoring of campus includes Illumination, Noise level, Ventilation and Indoor Air quality of the class room. It was observed that Illumination and Ventilation is adequate considering natural light and air velocity present.

## 6. Acknowledgement

We are grateful to the Management of Vellalar College for Women, Erode for providing Nature Science Foundation (NSF) this Environment Auditing project in the College Campus.

Further we sincerely thank the college staff for providing us necessary facilities and co-operation during the audit. This helped us in making the audit, a success.

Further we hope, this will boost the new generation to take care of Environment and propagate these views for many generations to come.



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9/11/21/19

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