CAUVERY COLLEGE FOR WOMEN
(Autonomous)
TIRUCHIRAPPALLI

GREEN AUDIT REPORT

2023 – 2024

CENTRE FOR ENVIRONMENTAL SUSTAINABILITY
DEPARTMENT OF ENVIRONMENTAL SCIENCES
Bishop Heber College (Autonomous)
Tiruchirappalli, Tamilnadu – 620 017

CAMPUS ENVIRONMENT AUDIT CERTIFICATE

Issued under the Green Campus Certification Process

CENTRE FOR ENVIRONMENTAL SUSTAINABILITY

GREENAUDIT

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

Annamalai Nagar, Woraiyur,
Tiruchirappalli District Tamilnadu – 620018

Has successfully conducted the **GREEN AUDIT** in accordance with the Sustainable Development Goals (SDGs) and standards of regulatory agencies in India.

Based on the Scope of Green audit we hereby acknowledge and certify that:

The Management, Teaching fraternity, students, and support staff of the **Cauvery College for Women (Autonomous)** have taken efforts to create a strategic change in attaining holistic Environmental Sustainability.

Period of Audit : 2023 – 2024

Date of Certification : 22 March 2024

Prof. A. Alagappa Moses
Ecology and Biodiversity Consultant
Functional Area Expert - NABET

A. Alagappa Moses
Empanelled Expert, FAE
Eco Services India Private Limited
Approved Function Area/s : EB (A)

CAMPUSENVIRONMENT AUDIT
CentreforEnvironmentalSustainabilityDepartmentofEnvironmentalSciencesBishopHeberCollege(Autonomous)Tiruchirappalli,Tamilnadu

TowardsCleanandGreenCampus

CAMPUS GREEN AUDIT

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Accredited by Quality Council of India – NABET **Category A** Projects *(vide AC MOM III, 2010, QCI, NABET, New Delhi)* SA- 270th AC Meeting February 28 ,2020_Rev.01 NABET ACM Dated 6 Jan 2023, RA2, Version 3	

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PREFACE

An Environmental Audit is a tool comprising a systematic, documented, periodic and objective evaluation of how well a project, organization or equipment is performing with the aim of helping to safeguard the environment. The audit should facilitate management control of environmental practices and assess compliance with policy objectives and regulatory requirements.

A clean and healthy environment aids effective learning and provides a conducive learning environment.

Green audit is an official examination of the effects a college on the environment. It helps to improve the existing practices with the aim of reducing the adverse effects of these on the environment concerned.

Higher Educational Institutions are committed to preserve the environment within the campus through promotion of energy savings, recycling of waste, water use reduction, water harvesting etc.

Green audit visualizes the documentation of all such activities taking stock of the infrastructure of the college, their academic and managerial policies and future plans in the form of an environmental audit report.

Green audit can be a useful tool for a college to determine how and where they are using the most energy or water or resources; the college can then consider how to implement changes and make savings. It can also be used to determine the type and volume of waste which can be used for a recycling project or to improve waste minimization plan. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of green impact on campus.

Green audit promotes financial savings through reduction of resource use. It gives an opportunity for the development of ownership, personal and social responsibility for the students and teachers. Thus, it is imperative that the college evaluate its own contributions toward a sustainable future. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more relevant.

The audit process in Cauvery College for Women, Tiruchirappalli involved initial interviews with management to clarify policies, activities, records and the co-operation of staff and students in the implementation of mitigation measures. Staff and students were given training how to collect the data for the green audit process. This was followed by staff and student interviews, collection of data through the questionnaire-based survey, review of records, observation of practices and observable outcomes. In addition, the approach ensured that the management and staff are active participants in the green auditing process in the college.

The baseline data prepared for the College will be a useful tool for campus greening, resource management, planning of future projects, and a document for implementation of sustainable development of the college. Existing data will allow the college to compare its programs and operations with those of peer institutions, identify areas in need of improvement, and prioritize the implementation of future projects. The green audit reports assist in the process of attaining an eco-friendly approach to the sustainable development of the college.

The results presented in the green audit report will serve as a guide for educating the college community on the existing environment related practices and resource usage at the college as well as spawn new activities and innovative practices. The Green Audit team expects the management to express their commitment to implement the recommendations.

CONTENTS

CHAPTER I

INTRODUCTION

The Reddy Educational Trust, Tiruchirappalli formed in the year 1984 with 48 members, enlightened and interested citizens of Tiruchirappalli district coming from various walks of life - Educationists, Lawyers, Doctors, Chartered Accountants, Entrepreneurs (representing sectors like Hospitality, Transportation etc), Public representatives, Former Ministers and Legislators felt the need to start one more college for women (at that time there was only two women's college) at Tiruchirappalli.

The Trust sought the permission of the Government of Tamilnadu to start an Arts and Science College for Women at Tiruchirapalli. The Government in its G.O.M.S. No.1298 Higher Education dated 01.10.1984 accorded permission to start one of the first self-financing colleges in Arts and Science in the State of Tamilnadu.

Bharathidasan University the Parent University gave its affiliation in its Lr.No.Aca/188/84 dated 12.10.1984 with 2 Under Graduate Courses, B.Com and B.Sc., Mathematics.

The Cauvery College for Women thus bloomed on 17.10.1984 with 40 students in B.Com., The college as on date (2021-2022) is offering 16 Under Graduate Programmes, 10 Post Graduate Programmes and 8 Research Programmes with a total student strength of 5100.

The college has been recognized by the University Grants Commission under Sec.2(f) and 12(B) of UGC Act 1956 in its Lr.No.F.8-111/2003(CPP-I) dated 11.12.2003. Autonomous status is conferred by UGC on 14.03.2019

The NAAC has awarded "A" Grade to the college consecutively. The college is recognized by NAAC as a Mentor Institution to identify the non-accredited colleges in our vicinity and motivate them for NAAC Accreditation.

The college has a well-equipped fully automated library which has 41,375 volumes of books, 100 Journals and 62 Magazines including 20 International Journals. We have high-tech lab facilities for all science courses and we have 557 computer terminals and 13 servers to meet the needs of our students. Other notable facilities includes KRT Seminar Hall with a seating capacity of 400, Muthu Lakshmi Reddy A/C Seminar Hall, modernized Internet lab and O.P. Ramasamy Reddiar Auditorium which is one of its kind with a seating capacity of 3000. The college has a well-equipped modern hostel for accommodating 1500 students. The main focus of the college is to run an institution not only for academic excellence but also a center which brings out the latent histrionic talents in them.

Fig. 1: The College Header and Emblem

The college coat of arms heralds six symbols of ethnicity and pride.

1. At its heart, the coat of arms bears the image of the Rockfort, which symbolizes the geographical and cultural heritage of the city.

2. A full bloomed lotus with a book on its top symbolizes intellectual blossoming and sustaining the purity of mind in the midst of adversities. The college is christened after the perennial river Cauvery which symbolizes youth, freshness, vigour and fulfillment.

3. The legendary 'Rajagopuram' of the Srirangam Temple is the tallest gopuram in Asia and stands as a representation of lofty thoughts and deeds which the institution presents.

4. The five faced lamp – "Kuthuvilakku" is a metaphoric representation of the light of knowledge dispelling the darkness of ignorance.

5. The college aims to provide academic excellence, employability and self reliance. This aim of the institution is represented by the image of a graduated scholar.

6. The motto of the college is "Karka", "Nirka", which is inscribed in classical Tamil language. It is the essence of the famous Thirukkural couplet 391 written by the classical poet Thiruvalluvar. "Karka" means 'to acquire' (learning / knowledge) "Nirka" means 'to adopt, to apply' (the acquired learning).

Holistically, the coat of arms stands for the empowerment of girls, who bloom and blossom inspite of adversities, graduate and aglow with the power of the acquired knowledge and conduct themselves accordingly, there by bringing glory to the institution, to the society and to the nation at large.

VISION AND MISSION

THE VISION

Our vision is to promote Academic Excellence, inculcate qualities of Competence, Confidence and Excellence for Employability and develop into Self Reliant individuals.

THE MISSION

- To impart higher education to Women Students from local and rural areas.
- To inculcate knowledge of higher order and to instill a scientific approach in the students about information technology.
- To make our wards aware of Entrepreneurial Development.
- To impart skills to the level of excellence and thus present a value system in the youth entrusted to us.

THE OBJECTIVES

- To empower students to participate in social, cultural and economic spheres and contribute positively to the upliftment of the society.
- To promote academic excellence by adopting customized learner focused/centered methodologies.
- To develop to be self-reliant and competent women by tapping and nurturing their potential through curricular and extracurricular activities.
- To provide skilled manpower by imparting on in-depth knowledge and keeping abreast with changing trends in technology.
- To inculcate the spirit of nationalism, uprightness and self confidence enabling them to become responsible members of the society and useful citizens of the nation.

CHAPTER II

CAMPUS ENVIRONMENTAL AUDIT

2.1 Campus Environmental Audit

An Environmental Audit is a tool comprising a systematic, documented, periodic and objective evaluation of how well a project, organization or equipment is performing with the aim of helping to safeguard the environment. The audit should facilitate management control of environmental practices and assess compliance with policy objectives and regulatory requirements. (European Environment Agency, European Commission 1999, Brussels).

Environmental auditing is a systematic, documented, periodic and objective process in assessing an organization's activities and services in relation to:

- Assessing relevant statutory and internal requirements
- Facilitating understanding of good environmental practices
- Promoting good environmental management
- Maintaining credibility with the public/clients
- Raising staff awareness and commitment to departmental environmental policy
- Exploring improvement opportunities
- Establishing the performance baseline for developing good sustainable practices.

2.2 Green Audit towards Sustainable Development

Sustainable Development (SD) is one of the biggest challenges of the twenty-first century and there can be no sustainability where educational

institutions (Universities, Institutions of Higher Education, and Schools) promote un-sustainability. In modern society 'No institutions are better situated and more obliged to facilitate the transition to a sustainable future than schools, Colleges and Universities'.

Sustainable Development Goals (SDGs)

The 17 Sustainable Development Goals and 169 targets which has been proposed demonstrates the scale and ambition of this new universal agenda. They seek to build on the MDGs and complete has not been achieved. They seek to realize the human rights of all and to achieve gender equality and the empowerment of all women and Girls. They are integrated and in and indivisible and balance the three dimensions of Sustainable Development: the economic, social and environmental. The Goals and Targets will stimulate action over the next 15 years in areas of critical importance for humanity and the planet.

Fig. 2: SUSTAINABLE DEVELOPMENT GOALS

The Colleges / Universities / and Schools are becoming engaged with the principles and concepts of SD, especially in the developed world, most of them to be traditional in India.

2.3 Environmental Audit

Environmental auditing has become a valuable tool in the management and monitoring of environmental and sustainable development programs. The information generated from audit exercise provides important information to many different stakeholders.

Although seen primarily as a tool in commerce and industry, creative application of environmental auditing techniques can improve transparency and communication in many areas of society where there is a need for greater understanding of environmental and ecosystem interactions. The environmental audit is a systematic process that must be carefully planned, structured and organized. As it is part of a long term process of evaluation and checking, it needs to be a repeatable process which can be readily replicated and can reflect change in both a quantitative and qualitative manner.

Universities and Colleges are regarded as “Small Cities” due to their size, population and the multifarious activities, which have some serious direct and indirect impacts on the local environment.

2.4 Campus Green Audit

The campus environmental audit is a common tool that many colleges and universities have employed in recent years. A campus environmental audit is both a summary and a report card for a campus and a way to evaluate where and how resources are being used. An environmental audit is also the first step in being able to quantify whether or not current and/or future environmental efforts are actually making a difference. As such, an environmental audit is the beginning of the sustainability planning process. The results can be used to quantify what kinds of impacts the campus community has on the environment and what steps the college can take to reduce these impacts.

2.5 Green Audit

Green Audit is defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Green Audit' aims to analyse environmental practices within and outside the Institute, which will have an impact on the eco-friendly ambience and sustainable ecosystem. It is a useful tool that can be used to understand existing practices and resource use to highlight the prospects of introducing resource efficiency in the ecosystem. Green audit provides cognizance on scope for improvement of environment and ecosystem of the campus. Thus, it is imperative that the College evaluate its own status on environmental sustainability and contributes towards sustainable future.

2.6 Pre Audit Stage

The process of Green Audit started with a pre-audit meeting that has provided an opportunity to reinforce the scope and objectives of the audit. The deliberations focused on the procedures to be followed in conducting the audit. This meeting is an important prerequisite for conducting green audit as it provides the first opportunity to meet and interact with the auditee and deal with any matters of concerns. The audit protocol and audit plan were discussed in detail and a Green Audit team was constituted with a staff adviser and student members.

a) Preliminary literature review of concepts and methodologies related to green audit.

b) Discussion with the management staff on various systems installed in the campus.

c) Awareness creation and interaction with the staff and students on the concept of green audit. Walk through the entire campus to understand the nature of water use, energy use and waste management systems in the campus.

2.7 Commitment of the College

The College has shown the commitment and keen interest towards conducting green audit and encourages green practices. The College is committed towards Education for sustainability and implementation of sustainable strategies, reducing carbon foot print and effective utilization of waste into wealth.

2.8 Goals and Objectives

The goal of Green audit is *"Ensuring Environmental Sustainability (EES) through reducing environmental foot print such as carbon, water, food, and land, management and conservation of the natural resource base, and the orientation of Education for Sustainable Development (ESD) by evolving Institutional policies on various environmental attributes in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations".*

2.9 Objectives:

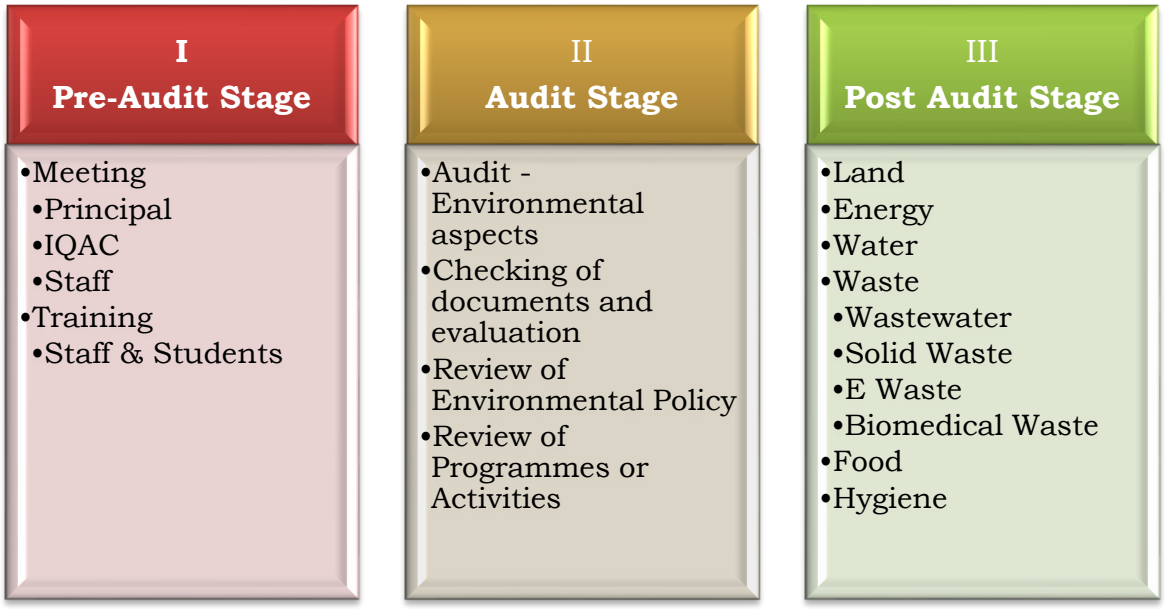
- To evolve institutional policies on various environmental attributes such as water, waste and sanitation and to assess the patterns of consumption of energy and water
- To measure the quantum of generation of wastes and hazardous substances
- To evaluate the level of awareness among the students regarding environmental resources
- To inculcate the concepts of 5 R principle such as Reduce, Refuse, Recover, Recycle and Repurpose among the stakeholders, thus making the organization as a better steward,
- To implement environmental management strategies so as to reduce overall environmental foot print.

2.10 Benefits of the Green Auditing

• More efficient resource management
• To provide basis for improved sustainability
• To create a green campus
• To enable waste management through reduction of waste generation, solid- waste and water recycling
• To create plastic free campus and evolve health consciousness among the stakeholders
• Recognize the cost saving methods through waste minimizing and managing
• Point out the prevailing and forthcoming complications
• Authenticate conformity with the implemented laws
• Empower the organizations to frame a better environmental performance
• Enhance the alertness for environmental guidelines and duties
• Impart environmental education through systematic environmental management approach and Improving environmental standards
• Benchmarking for environmental protection initiatives
• Financial savings through a reduction in resource use
• Development of ownership, personal and social responsibility for the College and its environment
• Enhancement of college profile
• Developing an environmental ethic and value systems in youngsters.
• Green auditing should become a valuable tool in the management and monitoring of environmental and sustainable development programs of the college.

2.11 Modules of Campus Green Audit

Campus Green Audit (CGA) is a process of resource management. They are individual modules carried out in a defined interval illustrating an overall improvement or change in the institution over a period of time. The concept of Eco-friendly campus mainly focuses on the efficient use of energy and water; minimize waste generation, economic efficiency and reduction in environmental foot print. All these indicators are assessed in the process of Campus Green Audit. The CGA promotes conservation energy, water and waste management. The audit stages are as follows:



Data Collection

a. Development of questionnaire to identify all water/energy using fixtures/ equipment and examine water or energy use patterns for individual buildings in the campus.

b. Collection of secondary data from compilation of electricity bills, collecting records of pumps, generators, water quality analysis reports, civil and electrical etc.

c. Semi-structured interview with maintenance manager, technicians, plumber and housekeeping staff on current situation and the past

trends in water consumption, electricity consumption, waste management, waste generation etc.

II. Data Processing and analysis

The existing trends and patterns in water usage, energy usage and waste generation and management is analyzed in this step from the data collected from the previous step.

III. Audit Recommendations and Reporting

Recommendation – On the basis of results of data analysis and observations, some steps for reducing power and water consumption were recommended. Proper treatments for waste were also suggested. Use of fossil fuels has to be reduced for the sake of community health.

CHAPTER III
METHODOLOGY

3.1 Campus Green Audit Methods

The Campus Green Audit is an exercise that ensure the extent of implementation green policies adopted by the institution. The methodologies for the green audit are as follows:

1. Preparation of Campus Green Audit questionnaire based on the objectives

2. Constitution of Campus Green Audit Team with staff and students for each module

3. Data Collection:

    a. Primary Data collection for each module by respective teams

    b. Secondary Data collection by the team members

    c. Collection of samples, observation, interviews and discussion with various staff members

    d. Steps in primary and secondary data collection

3.2 Green Audit Components

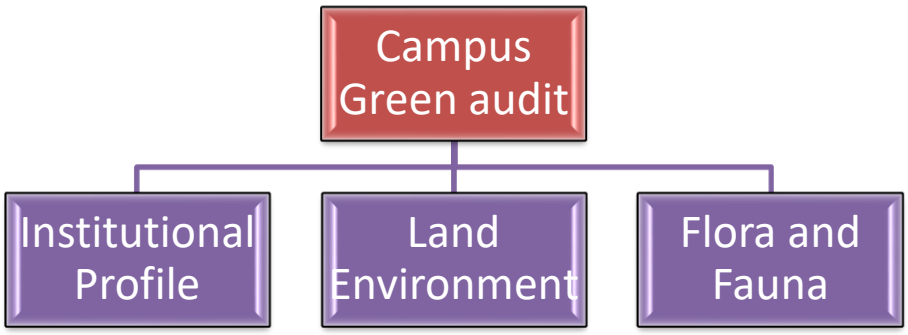


Fig. 3: Green Audit Components

CHAPTER IV

AUDIT STAGE

The Campus Green Audit (CGA) was carried out by the Post Graduate and Research Department of Environmental Sciences, Bishop Heber College (Autonomous), Tiruchirappalli, Tamilnadu. The CGA team constituted by the management during the pre-audit has done extensive data collection covering all the modules of green audit. The Campus Green Audit team comprises of Co-coordinators, Staff in-charge for each module and student volunteers.

4.1 Green Audit Team

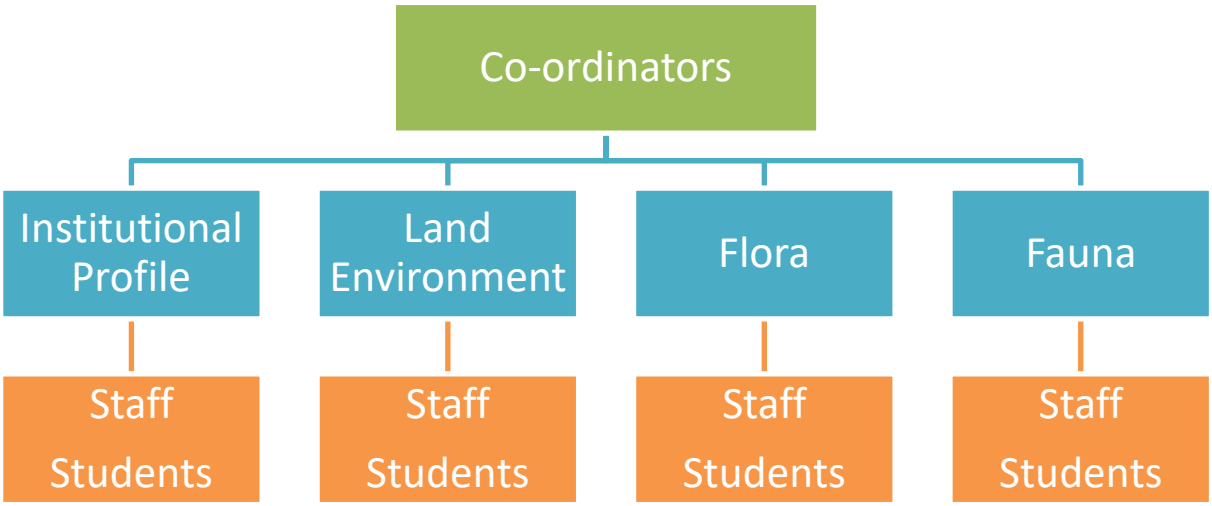


Fig. 4: Campus Green Audit Team

Campus Green Audit Assessment Team: 2023-2024

S.No.	Name	Designation	Department	Aspect
1.	Dr. R. Merlin Packiam	Professor	Computer Applications	Team Head
I	**Green Audit**			
2.	Dr. S. Sasikala,	Associate Professor	Mathematics	Land
3.	Dr. M. Keerthiga	Assistant Professor	Biotechnology	Flora and Fauna
II	**Environment Audit**			
4.	Ms. P. Thangamani	Assistant Professor	Business Administration	Air & Noise
5.	Ms.P. Thamizhini	Assistant Professor	Chemistry	Water
6.	Ms.P. Thamizhini	Assistant Professor	Chemistry	Waste water
7.	Dr. E. Priya, Dr. J. Prabha and Ms. B. Lavanya	Assistant Professor Assistant Professor Assistant Professor	Microbiology Commerce Commerce	Solid & E-Waste
8.	Ms. N. Ganga Devi	Assistant Professor	FSM&D	Food
III	**Energy Audit**			
	Ms. D. Devi	Assistant Professor	Physics	Energy
IV	**Campus Hygiene**			
9.	Dr. E. Priya	Assistant Professor	Microbiology	Campus Hygiene

Land Audit Team

Environmental Aspect	Land
Name of the Coordinator	Dr. S. Sasikala
Designation and Department	Associate Professor of Mathematics

Audit Team –Students /Scholars

S.No	Name of The Students	Class	Department
1.	K. Saranya	II M. Sc.,	Mathematics
2.	N. Abirami	II M. Sc.,	Mathematics
3.	R.Dhilothama	II M. Sc.,	Mathematics

4.	M.Harini	III B. Sc.,	Mathematics
5.	R.Kaviya Dharsheni	III. B. Sc.,	Mathematics

Flora and Fauna Audit Team

Environmental Aspect	**Flora and Fauna**
Name of the Coordinator	Dr. M. Keerthiga
Designation and Department	Assistant Professor of Biotechnology

Audit Team –Students /Scholars

S. No.	**Name of The Students**	**Class**	**Department**
1.	V. Gowsalya	II B. Sc.,	Biotechnology
2.	S. Hemalatha	II B. Sc.,	Biotechnology
3.	P. Nivekitha	II B. Sc.,	Biotechnology
4.	C. Kanmani	I. B. Sc.,	Biotechnology
5.	N. Karthika	I B. Sc.,	Biotechnology

Air and Noise Team

Environmental **Aspect**	**Air and Noise**
Name of the Coordinator	Ms. P. Thangamani
Designation and Department	Assistant Professor Business Administration

Audit Team –Students /Scholars

S.No	**Name of the Students**	**Class**	**Department**
1.	L.Dhiyasri	III BBA	Business Administration
2.	P.Princy		
3.	K.Kiruthiga		
4.	B.Shobika		
5.	S.Suvetha		

Food Team

Environmental Aspects	Food
Name of the coordinator	MS. N.Ganga Devi
Designation and Department	Assistant Professor FSM&D

Audit Team –Students /Scholars

S.No	**Name of The Students**	**Class**	**Department**
1.	R. Vijayalakshmi	II M.Sc .	FSM&D
2.	M. Abinaya	II M.Sc.	FSM&D
3.	C. Manisha Maheswari	II M.Sc.	FSM&D
4.	S. Sahana	III B.Sc.	FSM&D
5.	S. Lakshmi Shalini	III B. Sc.	N&D

Water & Waste Water Audit Team

Environmental Aspects	**Water**
Name of the Coordinator	Ms. P. Thamizhini
Designation and Department	Assistant Professor of Chemistry

Audit Team –Students /Scholars

S.No	**Name of The Students**	**Class**	**Department**
1.	P.Vinotha	I B. Sc.,	Chemistry
2.	N.Subasree	I B. Sc.,	Chemistry
3.	P.Aruna	II B. Sc.,	Chemistry
4.	S.Harin	II B. Sc.,,	Chemistry
5.	R.Kalpanai	II B. Sc.,.,	Chemistry

Solid and E Waste Audit Team

Environmental Aspects	**Solid Waste and E Waste**
Name of the Coordinator	Dr. E. Priya, Dr. J. Prabha and Ms. B. Lavanya
Designation and Department	Assistant Professor of Physics and Commerce

Audit Team –Students /Scholars

S.No	Name of The Students	Class	Department
1.	G. Dharanilakshmi	II B. Com.	Commerce
2.	A. Yazhini	II B. Com.	Commerce
3.	S.Ranjani	III B. Com.	Commerce
4.	R.Prabhavathi	III B. Com.	Commerce
5.	S.Ajitha	III B. Com.	Commerce

Energy Audit Team

Environmental Aspects	**Energy Audit**
Name of the coordinator	Dr. D. Devi
Designation and Department	Assistant Professor of Physics

Audit Team –Students /Scholars

S.No	Name of The Students	Class	Department
1.	R.Janani Sri	II M.Sc.,	Physics
2.	D.Saveedhana	II M.Sc.,	Physics
3.	V.Santhiya	III B.Sc.,	Physics
4.	R.Shurudhika	III B.Sc.,	Physics
5.	R.Bhuvanika	III B.Sc.	Physics

Campus Hygiene Audit Team

Environmental Aspects	Hygiene
Name of the coordinator	Dr. E. Priya
Designation and Department	Assistant Professor of Microbiology

Audit Team –Students /Scholars

S.No	Name of The Students	Class	Department
1.	S.Abinaya	III B. Sc.	Microbiology
2.	R.Keerthana	III B. Sc.	Microbiology
3.	M.Nagajothi	III B. Sc.	Microbiology
4.	R.Nithya	III B. Sc.	Microbiology
5.	R.Harshini	III B. Sc.	Microbiology

CHAPTER 5

Institutional Profile

Cauvery College for Women has a total strength of 4160 students and staff during the period 2023 – 2024.

Table 1: Total Population of the College (2023 – 2024)

Category	UG	PG	Ph.D	Total
Students	3143	500	61	3704
Teaching	203	-	-	203
Non-Teaching Staff and Others	179	-	-	179
Non-Teaching - Hostels	**74**	**-**	**-**	**74**
Total	**3599**	**500**	**61**	**4160**

Table 2: Student's Strength (2023– 2024)

Year	Total No. of Students
2023 – 2024	3704
Total	**3704**

Table 3: Hostel Student's Strength (2023– 2024)

Category	Number
Students	889
Non-Teaching Staff	**74**
Total	**963**

Table 4: Summary of Students and Staff

Year	Students& Scholars		Staff			Total
		Teaching	**Non-Teaching**	**Hostel**	**Others**	
2023 – 24	3704	203	70	74	109	4160
Total	3704	203	70	74	109	4160

CHAPTER 6

LAND AUDIT

The College has a total land holding of 5.88 acres, of which 15 % of the area under green cover. The College is located in a plain flat terrain with green cover augmenting the aesthetic value of the College.

The Campus includes a buildings housing administrative office, faculty offices, classrooms, conference halls, auditorium, guest house, library, small syndicate rooms (separate) and student dormitories within the campus.

6.1 Land Use pattern

The Land Use attributes were identified as Built-up area, Ground area, garden area, and green cover.

Table 5: Land Use at a Glance

S. No.	Aspects	:	Acres	Sq. Ft	Sq. M
1.	Total Land area	:	**5.88**	**256132**	**23795.52**
2.	Play Ground	:	**0.949**	**41338.44**	**3840.05**
3.	Plantation / Green area	:	**0.875**	**38095**	**3539**
4.	Built-up / Constructed Area	:	**2.175**	**94743**	**8802**
5.	Open space	:	**1.883**	**81956.4**	**7614.4**
6.	Terrain of the campus	:			**Plain**
7.	Roof Top area	:	**2.175**	**94743**	**8802**

Table 6: Land Use Data

S. No.	Categories of Land Use	Acres	Sq. M
1	Open space / Ground /Parking	**2.832**	**11460.7**
2	Plantation / Green area	**0.875**	**3539**
3	Built-up / Constructed Area	**2.175**	**8802**
	Total area of the campus	5.88	**23795.52**

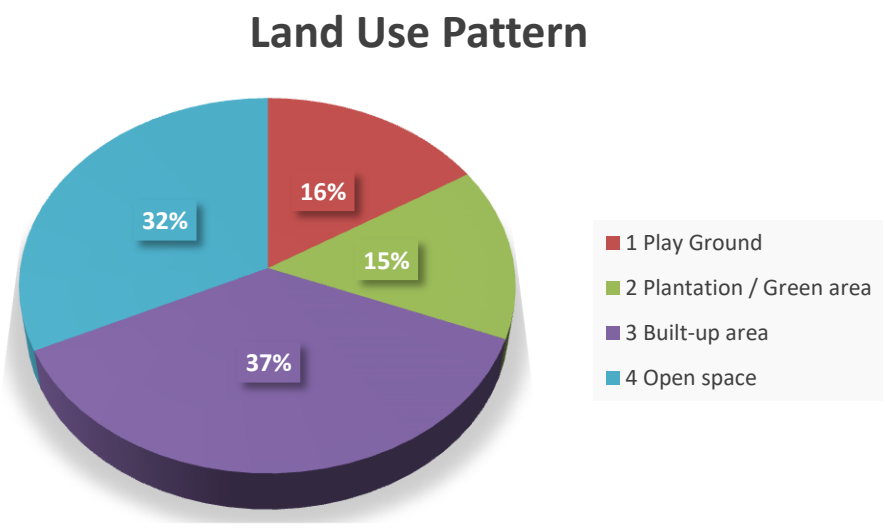


Fig. 5: Land Use Pattern

Layout of the campus:

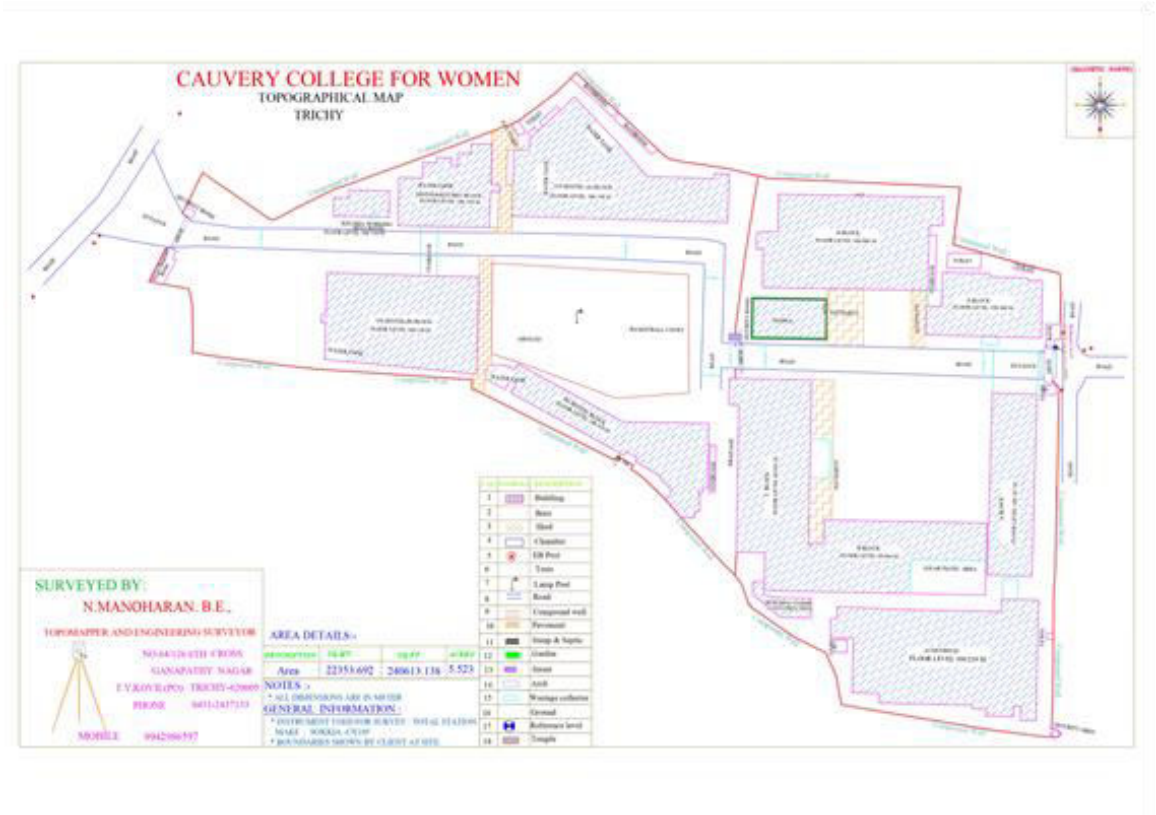


Fig. 6: Layout of the campus – Topographical map (Buildings)

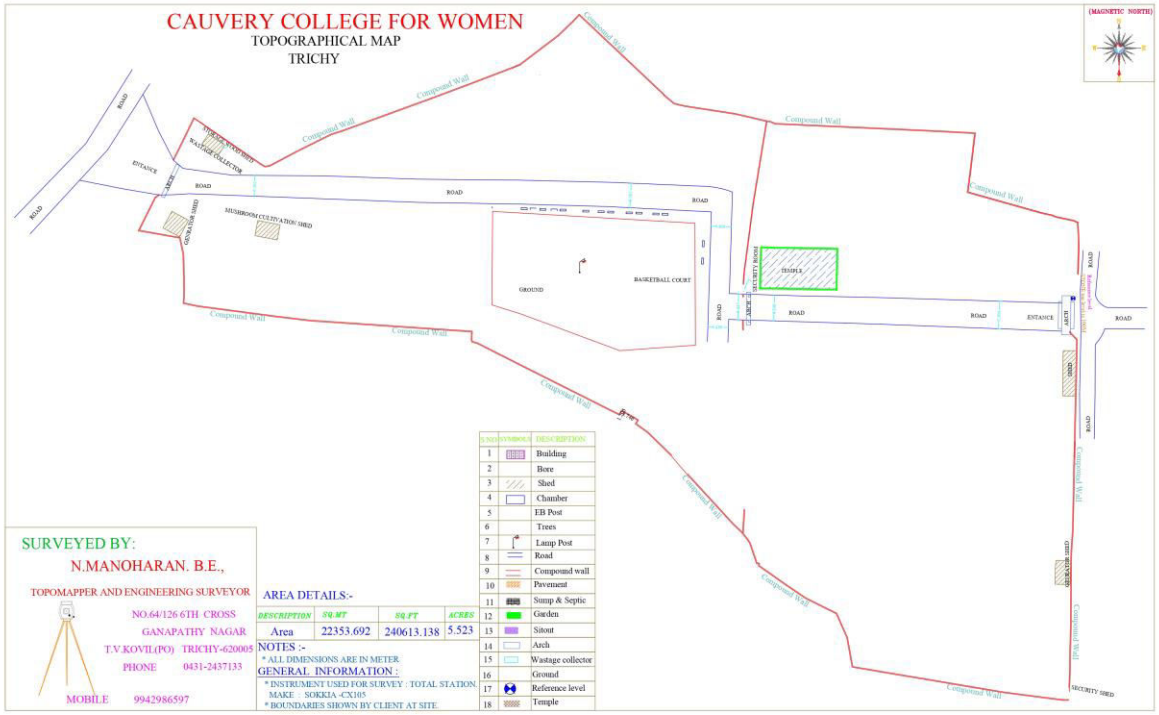


Fig. 7: Layout of the campus – Topographical Map (Sheds)

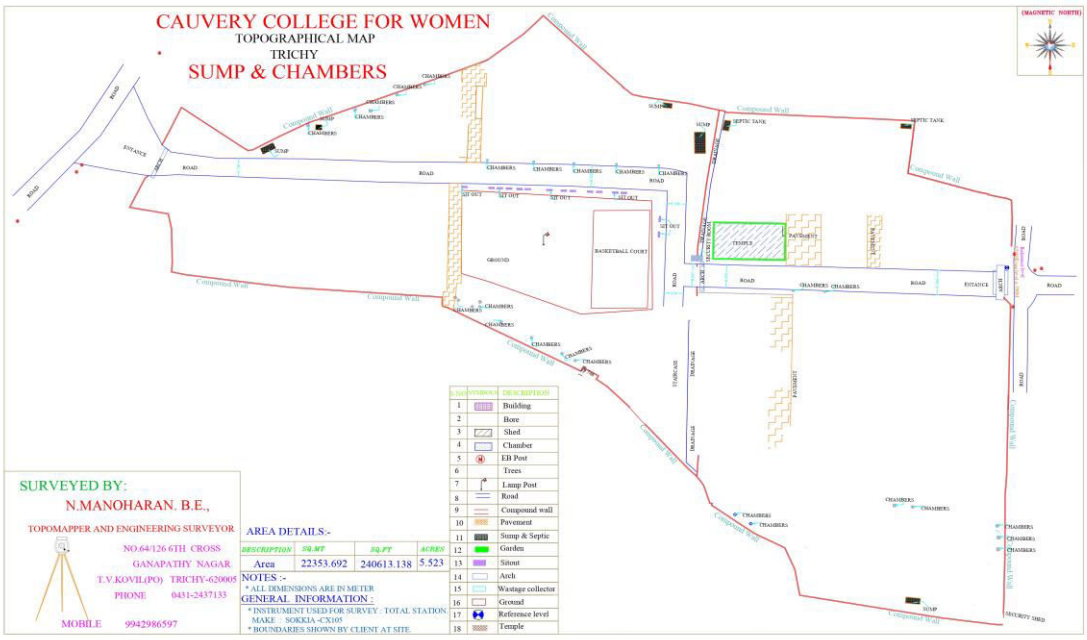


Fig. 8: Layout of the campus – Topographical map (Sump & Chambers)

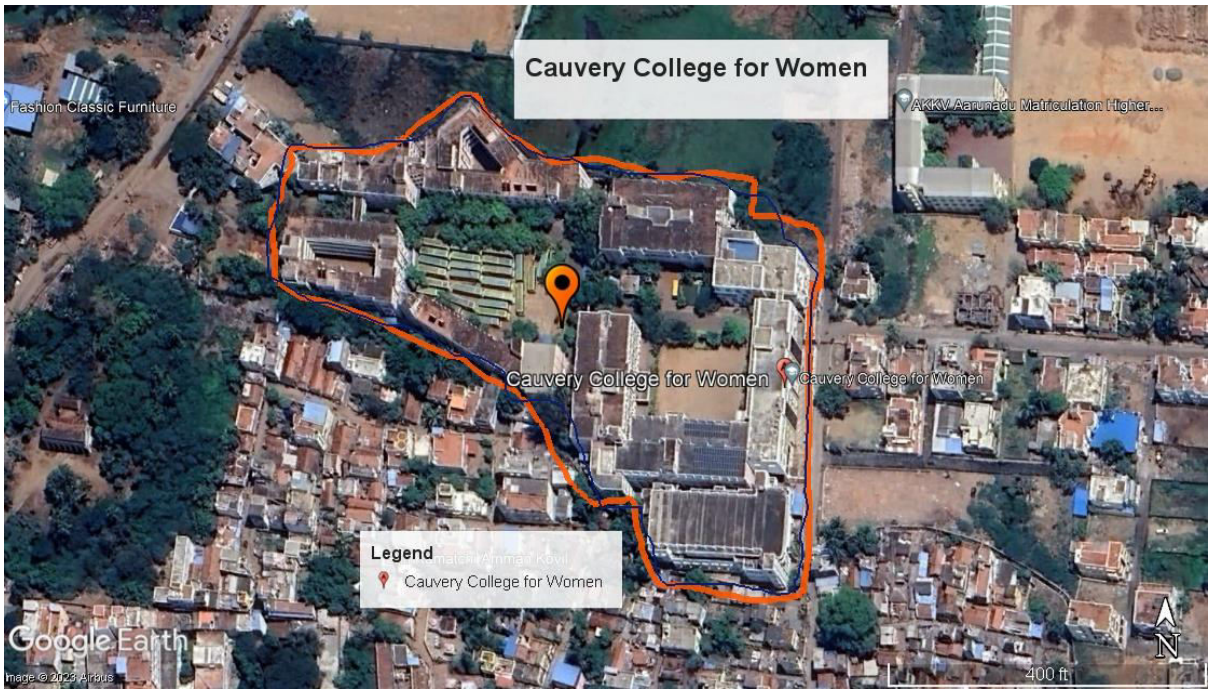


Fig. 9: Google Earth View of the Campus

Table 7: Campus Infrastructure

Building No.	Name of the Building		Sq. M	Acres	Age of the Buildings	
					Opened on	Age as on December 2022
1.	Admin Block (A Block)		644	0.1591	2019	3 years
2.	B Block		595	0.1470	1993	29 years
3.	B1 Block		374	0.0924	2009	13 years
4.	C Block		947	0.2340	1999	23 years
5.	D Block		1135	0.2805	2001	21 years
6.	Auditorium		1424	0.3519	2004	18 years
7.	E Block		836	0.2066	2016	6 years
8.	Hostel A Block		970	0.2397	1997	25 years
9.	Hostel B Block		861	0.2128	2000	22 years
10.	PG Block		556	0.1374	2003	19 years
11.	Kitchen Dinning		262	0.0647	1997	25 years
12.	New Dinning		110	0.0272	1997	25 years
13.	Workers Rest Room		88	0.0217	1997	25 years

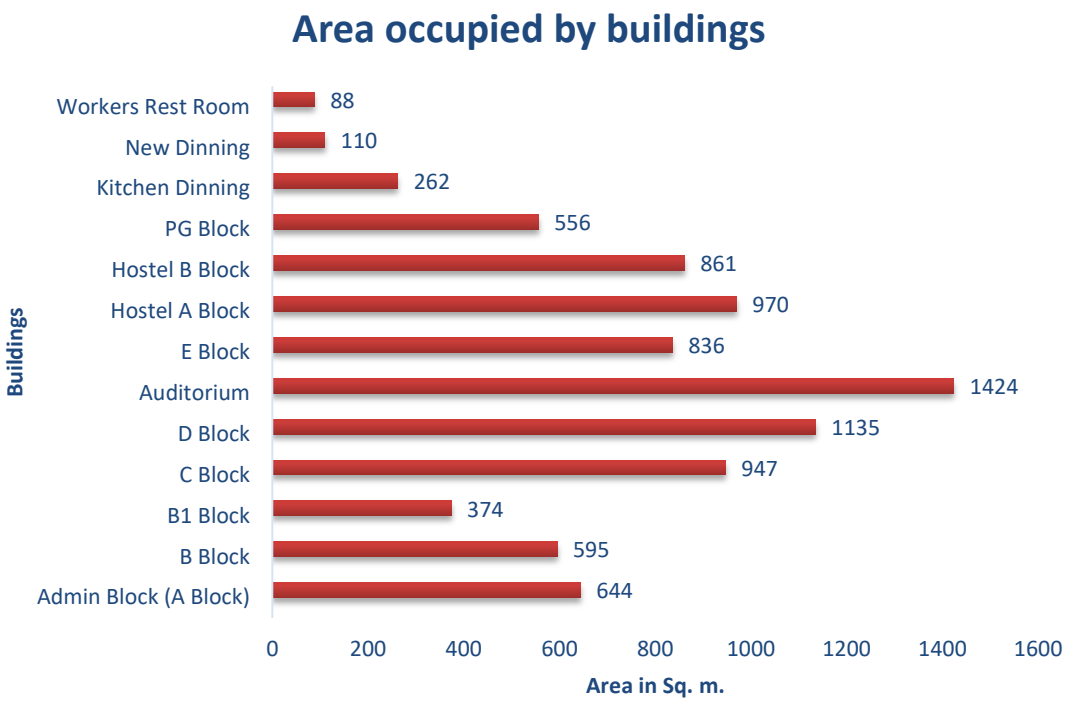


Fig. 10 Area occupied by Buildings

Total Green Cover

Table 8: Green Cover

Land Use Category	Acre	Sq.M
Plantation / Green area	**0.875**	**3539**

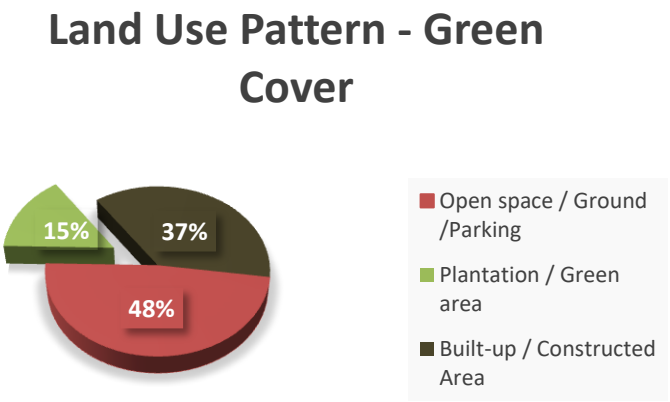


Fig. 11: Land Use Pattern showing Green Cover

6.2 Observation and Comments

1 The land use attributes include built-up area, Play Ground, Parking lots, storm water drains and green cover.

2 The campus has a moderate green area of **3539 Sq. M i.e. 0.875** acres with a built up area of **8802 Sq. M.** The green cover constitutes **15%** of the total area.

3 As per the National Forest Policy, 1988 and the new draft National Forest Policy minimum of **one-third** (or **33%)** of **total land area of India** should be under forest cover (fc) or tree cover (tc).

4 The campus green cover is only 15% with a shortage of 18% as per the norms prescribed by National Forest Policy 1988,

5 The campus should take measures to increase the green cover by 18% either on campus or off-campus.

CHAPTER 7

CAMPUS BIODIVERSITY

The natural landscape of the College campus includes green vegetation, trees, and rain water harvesting systems providing a unique environmental setting conducive for a wide range of floral and faunal diversity. Totally 116 species of plants are present in the College campus.

7.1 Assessment of Flora

Table 8: Campus Biodiversity

S. No.	Habit	Number
1	Herbs	18
2	Shrubs	31
3	Trees	28
	Total	77

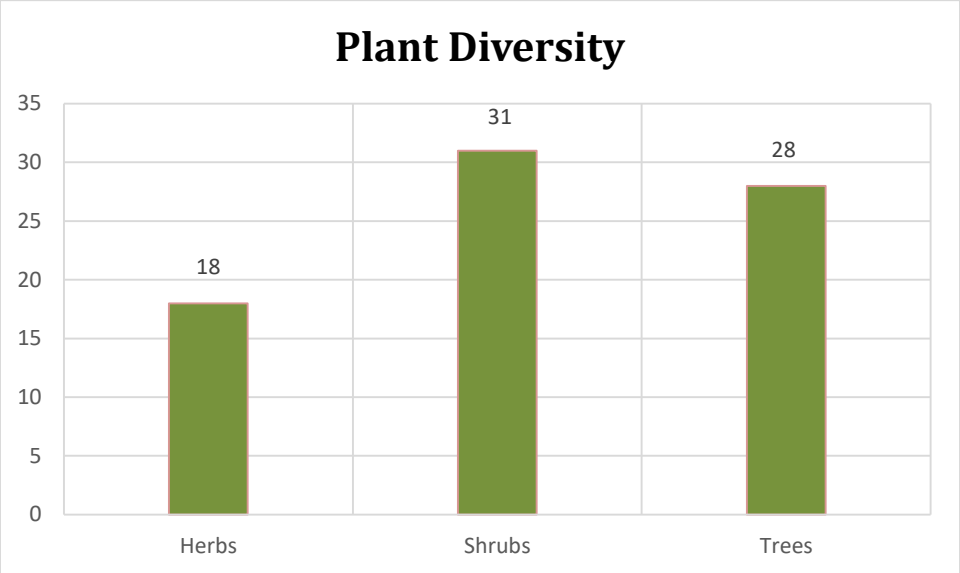


Fig. 12 Diversity of Flora

Table 9: Campus Flora

TREES

S.No.	Botanical Name	Family	Vernacular Name	Numbers
1.	Azadirachta indica	Meliaceae	Neem Tree	38
2.	Millettia pinnata	Fabaceae	Pungai Tree	8
3.	Mangifera indica	Anacardiaceae	Mango Tree	7
4.	Musa paradisiaca	Musaceae	Banana Tree	25
5.	Cocos nucifera	Arecaceae	Coconut tree	10
6.	Psidium guajava	Myrtaceae	Guava Tree	4
7.	Manilkara zapota	Sapotaceae	Sapodilla	3
8.	Carica papaya	Caricaceae	Papaya Tree	1
9.	Punica granatum	Punicaceae	Pomegranate	9
10.	Citrus limon	Rutaceae	Lemon	7
11.	Citrus medica	Rutaceae	Narthangai	5
12.	Artocarpus heterophyllus	Moraceae	Jackfruit	1
13.	Phyllanthus acidus	Phyllanthaceae	Indian gooseberry	5
14.	Phyllanthus emblica	Phyllanthaceae	Parriya nelli	2
15.	Phyllanthus reticulatus	Phyllanthaceae	Neernelli	3
16.	Saraca asoca	Fabaceae	Ashoka Tree	2
17.	Aegle marmelos	Rutaceae	Billva tree	4
18.	Bambusa vulgaris	Poaceae	Bamboo Tree	10
19.	Pithecellobium dulce	Fabaceae	Kodukapuli Tree	1
20.	Tectona grandis	Lamiaceae	Teakwood Tree	1
21.	Terminalia catappa	Combretaceae	Vatham Maram	3
22.	Couroupita guianensis	Lecythidaceae	Nagalingam maram	1
23.	Mimusops elengi	Sapotaceae	Magilam Tree	1
24.	Ficus religiosa	Moraceae	Arasham Tree	1
25.	Ficus benghalensis	Moraceae	Aalamaram	1
26.	Diospyros candolleana	Ebenaceae	Nila viruksha	1
27.	Cratoxylum maingayi	Hypericaceae	Read Tiew	2
28.	Hyophorbe lagenicaulis	Arecaceae	bottle palm	19
				175

SHRUBS

S.No.	Botanical Name	Family	Vernacular Name
1.	Rauvolfia serpentina	Apocynaceae	sarphakranthi
2.	Canna iridiflora	Cannaceae	Canna Lilies
3.	Phyllanthus acidus	Phyllanthaceae	cermai
4.	Lantana	Verbenaceae	weeping lantana

	montevidensis		
5.	Plumbago auriculata	Plumbaginaceae	cape leadwort
6.	Adenium obesum	Apocynaceae	desert rose
7.	Canna indica	Cannaceae	Indian Shot
8.	Euphorbia milii	Euphorbiaceae	crown of thorns
9.	Pseuderanthemum maculatum	Yellow-Veined Eranthemum	yellow-vein eranthemum
10.	Syngonium podophyllum	Araceae	Arrowhead Plant
11.	Plumeria pudica	Apocynaceae	Bridal Bouquet
12.	Plumeria obtusa	Apocynaceae	Singapore graveyard flower
13.	Bonellia macrocarpa	Theophrastaceae	Cudjoewood
14.	Codiaeum variegatum	Euphorbiaceae	Croton pictus
15.	Ruellia tuberosa	Acanthaceae	snapdragon root
16.	Thuja occidentalis	Cupressaceae	eastern white-cedar
17.	Punctatum Aureum	Euphorbiaceae	Gold Dust Narrow Leaf Croton
18.	Hymenocallis littoralis	Amaryllidaceae	Beach Spiderlily
19.	Dracaena angustifolia	Asparagaceae	Narrow-Leaf Dragon Tree
20.	Rhapis excelsa	Arecaceae	Lady Palm
21.	Philodendron Burle Marx	Araceae	Philodendron
22.	Ixora coccinea	Rubiaceae	scarlet jungle flame
23.	Dypsis lutescens	Arecaceae	Areca Palm · Bamboo Palm
24.	Pisonia grandis	Bougainvillea	grand devil's-claws
25.	Ixora chinensis	Rubiaceae	Chinese ixora
26.	Tecoma stans	Bignoniaceae	yellow trumpetbush
27.	Encephalartos chimanimaniensis	Zamiaceae	Cycad plant
28.	Kopsia fruticosa	Apocynaceae	Shrub Vinca
29.	Aloe vere	Liliaceae	kattralai
30.	Lawsonia inermis	Lythraceae	Henna
31.	Hibiscus rosa-sinensis	Malvaceae	Hibiscus

HERBS

S.No.	Botanical Name	Family	Vernacular Name
1.	Zephyranthes sps	**Amaryllidaceae**	Thunder lily Flower
2.	Ocimum tenuiflorum	Labiatae	Karuntulsi
3.	Ocimum basilicum	Labiatae	Thiruneetru pachilai
4.	clitoria ternatea	Fabaceae	Nilakkakkanam
5.	Ocimum sanctum	Labiatae	Vishnu tulsi
6.	mentha piperita	Lamiaceae	Mint tulsi
7.	Cymbopogon citratus	Poaceae	Lemongrass
8.	Piper betle	Piperaceae	Betel
9.	Sphagneticola trilobata	Asteraceae	Trailing daisy

10.	Phyllanthus amarus	Phyllanthaceae	Keelaneeli
11.	Gloriosa superba	Colchicaceae	flame lily
12.	Thymus vulgaris	Lamiaceae	Garden thyme
13.	Salvia officinalis	Lamiaceae	Sage Plant
14.	Catharanthus roseus	Apocynaceae	Pink periwinkle
15.	Aristolochia indica	Aristolochiaceae	Perumarunthukodi
16.	Portulaca quadrifida	Amaranthaceae	Pasalai Keerai
17.	Baccaurea motleyana	Phyllanthaceae	Rambai
18.	Solanum trilobatum	Solanaceae	Thoothuvalai

ORNAMENTAL PLANTS

S.No.	Botanical Name	Family	Vernacular Name
1.	Rhapis excelsa	Arecaceae	Bamboo Palm, Lady Palm
2.	Pandanus veitchi	Pandanaceae	screw pine
3.	Adenium obesum	Apocynaceae	desert rose
4.	Canna indica	Cannaceae	Indian Shot,
5.	Euphorbia milii	Euphorbiaceae	crown of thorns
6.	Syngonium podophyllum	Araceae	Arrowhead Plant
7.	Hyophorbe lagenicaulis	Arecaceae	bottle palm
8.	Plumeria pudica	Apocynaceae	Bridal Bouquet
9.	Plumeria obtusa	Apocynaceae	Singapore graveyard flower
10.	Bonellia macrocarpa	Theophrastaceae	Cudjoewood
11.	Codiaeum variegatum	Euphorbiaceae	Croton pictus
12.	Ruellia tuberosa	Acanthaceae	snapdragon root
13.	Thuja occidentalis	Cupressaceae	eastern white-cedar,
14.	Punctatum Aureum	Euphorbiaceae	Gold Dust Narrow Leaf Croton
15.	Zephyranthes sps	Amaryllidaceae	Thunder lily Flower
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21.	Dypsis lutescens	Arecaceae	Areca Palm · Bamboo Palm
22.	Pisonia grandis	Bougainvillea	grand devil's-claws
23.	Ixora chinensis	Rubiaceae	Chinese ixora
24.	Tecoma stans	Bignoniaceae	yellow trumpetbush
25.	Encephalartos chimanimaniensis	Zamiaceae	Cycad plant
26.	Kopsia fruticosa	Apocynaceae	Shrub Vinca

MEDICINAL PLANTS

S.No.	Botanical Name	Family	Vernacular Name
1.	Aloe vere	Liliaceae	kattralai
2.	Ocimum tenuiflorum	Labiatae	Karuntulsi
3.	Cissus quadrangularis	vitaceae	Perandae
4.	Coleus amboinicus	Lamiaceae	Omavalli
5.	Ocimum basilicum	Labiatae	Thiruneetru pachilai
6.	clitoria ternatea	Fabaceae	Nilakkakkanam
7.	Ocimum sanctum	Labiatae	Vishnu tulsi
8.	mentha piperita	Lamiaceae	Mint tulsi
9.	Cymbopogon citratus	Poaceae	Lemongrass
10.	Piper betle	Piperaceae	Betel
11.	Sphagneticola trilobata	Asteraceae	Trailing daisy
12.	Phyllanthus amarus	Phyllanthaceae	Keelaneeli
13.	Gloriosa superba	Colchicaceae	flame lily
14.	Thymus vulgaris	Lamiaceae	Garden thyme
15.	Salvia officinalis	Lamiaceae	Sage Plant
16.	Catharanthus roseus	Apocynaceae	Pink periwinkle
17.	Aristolochia indica	Aristolochiaceae	Perumarunthukodi
18.	Lawsonia inermis	Lythraceae	Henna
19.	Hibiscus rosa-sinensis	Malvaceae	Hibiscus
20.	Portulaca quadrifida	Amaranthaceae	Pasalai Keerai
21.	Baccaurea motleyana	Phyllanthaceae	Rambai
22.	Solanum trilobatum	Solanaceae	Thoothuvalai

Table 11: HABITAT FORMS

1.	Xerophytes	*Aloe barbadensis*
		Asparagus racemosus
2.	Mesophytes	NIL
3.	Hydrophytes	*Nymphaea alba*
4.	Epiphytes	*Loranthus longifolia*

7.2 Green Cover in the Campus

The campus has a green area of 15% which is below the norms of green area recommended by the National Forest Policy of India, 1988.

7.3 Tools to Measure Carbon Absorption

Assumptions

1. Number of mature trees in 1 acre = 700
2. Carbon absorption capacity of 700 trees is equivalent to carbon emitted by a speeding car for 26,000 miles
3. 26,000 miles = 41,843 km
4. Average km. covered by a car per litre of petrol is 20 km
5. Total quantity of petrol consumed by the car (41,843/20) = 2092L

7.4 Observation and Comments

1 The campus has 175 grown trees, the carbon emitted by a car due to consumption of 1 litre of petrol is 2.3 kg CO_2.

2 At this rate the total quantity of carbon emitted by 2092 litres of petrol (2092 × 2.3 kg) = 5389.44 kg CO_2 or 5.39 tonnes of CO_2.

3 Therefore, the carbon absorption of **One full-grown tree is 5389.44/175 30.79 kg CO_2.**

The footprint calculation is based on
The standard unit of 1 litre petrol = 2.3 kgCO_2.

7.5 Carbon absorption by flora in the Institution

Carbon absorption capacity of one full-grown tree = 192.48 kg CO_2.

1. Therefore the carbon absorption capacity of 30 full-grown trees in the Campus is (175 × 30.79 kg CO_2) **= 5389.30 kg of CO_2.**

7.6 ASSESSMENT OF FAUNA

The animal life of an area is dependent upon the vegetation and there are countless relationships between the species composing an animal community. Fauna assessment involves more problems than flora assessment by virtue of the greater variety of animal types, their mobility and behavior. Faunal assessment provides a basis for determining relative abundance and evaluating commonness or rarity of each species encountered.

In the college campus, the animal survey was conducted along with the plants. The study includes surveys of the animal communities such as aquatic organisms, insects, molluscs, reptiles, fishes, amphibians, birds and mammals. The details of fauna found in campus are given in the following tables:

Table 12: Diversity of Fauna

S. No.	Faunal Group	No. of Species
	INVERTEBRATA	
1	**Arthropods**	
	a. Butterfly	**20**
	b. Ants	**03**
	c. Insects	**06**
2	**Arachnids**	
	Spiders	**04**
3	Mollusca	**02**
	CHORDATA	
2	Reptiles	**08**
3	Birds	**22**
4	Mammals	**07**

INVERTEBRATA: PHYLUM: ARTHROPODA

Table 13: BUTTERFLY

S.No	Common Name	Scientific Name	Status/Schedule
1.	Common grass dart	*Taractroceramaevius*	Common
2.	Indian palm bob	*Suastusgremius*	Common
3.	Common rose	*Pachlioptaaristolochiae*	Common
4.	Crimson rose	*Pachliopta hector*	Common
5.	Common jay	*Graphiumdoson*	Common
6.	Tailed jay	*Graphiumagamemnon*	Common
7.	Lime butterfly	*Papiliodemoleus*	Common
8.	Common mormon	*Papiliopolytes*	Common
9.	Common gull	*Ceporanerissa*	Common
10.	Crimson tip	*Colotisdanae*	Common
11.	Plain orange tip	*Colitis euharis*	Common
12.	Common grass yellow	*Euremahecabe*	Common
13.	Three spot grass yellow	*Euremablanda*	Common
14.	Yellow orange tip	*Ixias pyrene*	Common
15.	Common wanderer	*Pareroniavaleria*	Common
16.	Plain tiger	*Danausalmanc*	Common
17.	Stripped tiger	*Danausgeutia*	Common
18.	Plain tiger	*Danuschrysippus*	Common
19.	Common crow	*Euploea core*	Common
20.	Blue tiger	*Tirumalalimniace*	Common

Table 15: INSECTS

S.No	Common name	Scientific Name	Status/Schedule
1.	*Ponerinae*	*Leptogenysprocessionalis*	Common
2.	Slender ants	*Tetraponera*sp	Common

3.	*Monomorium*	*Monomoriumsp.*	Common
4.	Big-headed ants	*Pheidole*sp.	Common
5.	Carpenter ant	*Camponotussericeus*	Common
6.	Red Imported Fire Ant	*Solenopsisinvicta*	Common

Table 16: ANT

S.No.	Common Name	Scientific Name	Status
1.	*Fire ant*	*Solenopsisgeminata*	Common
2.	*Samyerumbu*	*Paratrechinalongicornis*	Common
3.	*Bug*	*Probergrothissanuinolens*	Common

Table 17: SPIDER

S.No.	Common Name	Scientific Name	Status/schedule
1.	Jumping spider	*Menemerusfulvus*	Common
2.	Grey wall jumper	*Menemerusbivittatus*	Common
3.	Grass cross spider	*Argiope catenulate*	Common

Table 18: PHYLUM: MOLLUSCA

S.NO	Common Name	Scientific Name	Status/schedule
1.	Apple snail	*Pilaglobosa*	Common
2.	Ariophanta	*Ariophantabristrialis*	Common

Table 19: CLASS: REPTILIA

S.No.	Common Name	Scientific Name	Status/schedule
1.	Calotes	*Calotesversicolar*	Common
2.	Varanus	*Varanusvarius*	Common
3.	Non poisonous snake	*Lycodonaulicus*	Common
4.	Krait (Kattuviriyan)	*Bungaruscaeruleus*	Common
5.	Rat snake	*Ptyas mucosa*	Common
6.	Chameleon	*Chameleo chameleon*	Rare
7.	Green snake	*Primeresureusgramineus*	Common
8.	Common wall Lizard	*Podarcismuralis*	Common

Table 20: CLASS: AVES (BIRDS)

S.No	Scientific Name	Common Name	IUCN	WPA 1972 Schedule
1.	*Thrdskiornismelanocephalus*	Black headed Ibis	LC (3.1)	IV
2.	*Bubulcus ibis*	Cattle Egret	NT (3.1)	IV
3.	*Gallinulachloropus*	Common Coot	LC (3.1)	IV
4.	*Gallinulachloropus*	Common Moorhen	LC (3.1)	IV
5.	*Anhinga melanogaster*	Drater	NT (3.1)	IV
6.	*Ardeacinerea*	Grey Heron	LC (3.1)	IV
7.	*Gelochelidonnilotica*	Gull billed tern	LC (3.1)	IV
8.	*Phalacrocoraxfuscicollis*	Indian Cormorant	NT (3.1)	IV
9.	*Ardeolagrayii*	Indian pond heron	LC (3.1)	IV
10.	*Mesophoyxintermedia*	Intermediate Egret	LC (3.1)	IV
11.	*Dendrocygnajavanica*	Lesser whistling Duck	NT (3.1)	IV
12.	*Phalacrocoraxniger*	Little Cormorant	LC (3.1)	IV
13.	*Egrettagarzetta*	Little Egret	LC (3.1)	IV
14.	*Tachybaptusruficollis*	Little Grebe	NT (3.1)	IV
15.	*Porphyrioporphyrio*	Purple Swamp hen	LC (3.1)	IV
16.	*Amaurornisphoenicurus*	White Breasted Water hen	LC (3.1)	IV
17.	*Tringaochropus*	Wood Sandpiper	NT (3.1)	IV
18.	*Motacila alba*	White wagtail	LC (3.1)	IV
19.	*Halcyon smyrnensis*	White throated kingfisher	LC (3.1)	IV
20.	*Cerylerudis*	Pied kingfisher	NT (3.1)	IV
21.	*Alcedoatthis*	Common kingfisher	LC (3.1)	IV
22.	*Vanellusindicus*	Red Wattled lapwing	LC (3,1)	IV

NT Near Threatened : LC : Least Concern

Table 21: CLASS: MAMMALIA

Sl. No.	Common Name	Scientific Name	IUCN status / Schedule
1	Indian palm squirrel	*Fumambuluspalmarum*	*Lower risk/III*
2	Grey mongoose	*Herpestesedwardsii*	*Lower risk/II*
3	Indian gerbils	*Tateraindica*	*Lower risk/III*
4	Large bandicoot – rat	*Bandicotaindica*	*Lower risk/III*
5	House rat	*Rattusrattus*	*Lower risk/III*
6	Schneider's leaf-nosed bat	*Hipposiderosspeoris*	*Lower risk/III*
7	Fulvous fruit bat	*Rousettusleschenaultii*	*Lower risk/III*

7.7 Observations – Fauna

The fauna observed and recorded in the study area are as follows:

Invertebrates The insects in the study area are interrelated with each other and other organisms. Invertebrates recorded in the study site include 20 species of butterflies, 3 species of ants, 2 species of molluscans, and 2 species of spiders.	**Chordates** The chordates include 7 species of mammals, 22 species of birds, 8 species of reptiles, **Reptiles** The reptiles recorded in the study area include lizards, and snakes. Totally 8 species of reptiles were recorded in the study sites.	**Birds** Birds play an important role in understanding the ecological balance and its interrelationships. Totally 22 species of birds were recorded in the campus. **Mammals** The mammals present in the study area include Mongoose, Indian palm Squirrel, etc. These mammals are spread over the study area. Totally 6 species of mammals were recorded in the campus.

CHAPTER 8

CONCLUSION

8.1 Conclusion

Green Audit is the most efficient way to identify the strength and weakness of environmental sustainable practices and to find a way to solve problem. Green Audit is one kind of professional approach towards a responsible way in utilizing economic, financial, social and environmental resources. 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). There is scope for further improvement, particularly in relation to waste, energy and water management. The college in recent years considers the environmental impacts of most of its actions and makes a concerted effort to act in an environmentally responsible manner. Even though the college does perform fairly well, the recommendations in this report highlight many ways in which the college can work to improve its actions and become a more sustainable institution.

8.2 Observations and Comments

Land

1 The land use attributes include built-up area, Play Ground, Parking lots, storm water drains and green cover.

2 The campus has a moderate green area of **3539 Sq. M i.e. 0.875** acres with a built up area of **8802 Sq. M.** The green cover constitutes **15%** of the total area.

3 As per the National Forest Policy, 1988 and the new draft National Forest Policy minimum of **one-third** (or **33%)** of **total land area of India** should be under forest cover (fc) or tree cover (tc).

4 The campus green cover is only 15% with a shortage of 18% as per the norms prescribed by National Forest Policy 1988,

5 The campus should take measures to increase the green cover by 18% either on campus or off-campus.

6 Biodiversity

1 The campus has 175 fully grown trees, herbs, shrubs and medicinal plants.

Carbon absorption by flora in the Institution

2 The overall carbon sequestration potential of the campus is **5389.30 kg of CO_2.**This implies that the campus has the maximum carbon sequestration potential and stands as a model institution.

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