SINCE 1923

Internal Quality Assurance Cell (IQAC)

ST. XAVIER'S COLLEGE (AUTONOMOUS)

(Recognized as "College with Potential for Excellence" by UGC)

(Accredited at A^{++} Grade with a CGPA of 3.66 / 4 in Cycle IV by NAAC)

PALAYAMKOTTAI - 627002

Report on

Internal Green Audit / Energy Audit / Environmental Audit

2025-2026

30.03.2026

INTERNAL GREEN AUDIT, ENVIRONMENT AUDIT AND ENERGY AUDIT REPORT

30.03.2026

Organized

Internal Quality Assurance Cell (IQAC)

St. Xavier's College (Autonomous)

(Recognized as "College with Potential for Excellence" by UGC & Accredited by NAAC at A++ Grade with a CGPA of 3.66 out of 4)

Palayamkottai - 627 002

Tamil Nadu, India

1. INTRODUCTION

Any nation's growth and development begins from its educational institutions. The ecology or environmentalism is considered as a principal factor of progress associated with the environment. A clean and healthy environment aids effective learning and provides a conducive learning environment. Educational institutions now-a-days are becoming more sensitive to environmental factors and more concepts are being introduced to make them eco-friendly. To preserve the environment within the campus, various viewpoints are applied by several educational institutes to solve their environmental problems such as promotion of the energy savings, waste management, water reduction, water harvesting, etc.

Green Audit was first initiated in the 1970s with a view to inspect the work of institutions whose exercises could cause risk to health of inhabitants and the environment. The increase of health concerns and issues prompted the government to start analyzing the consequences of environmental pollution. The institutions all over India are performing Green Audit in accordance with relevant rules and regulations to improve productions and implement ways to lower the cost and add to the revenue.

As per the NAAC Criteria 7, Green Audit is assigned to upgrade the environmental conditions in and around the institutes or colleges with the aid of performing tasks like waste management, energy saving to turn into a better environmental friendly institute.

Xavier Solai is a man-made forest model created to conserve the dry deciduous elements of the Southern Western Ghats and to promote environmental awareness. In India, tropical dry forests cover a vast area and have significant socio-ecological importance, yet they remain under-studied and poorly protected. To address this, Xavier Solai was developed with a mix of native tree species, forming a resilient and biodiverse ecosystem that adapts to environmental changes while meeting ecological and human needs. It also serves as a living laboratory, providing experiential learning and fostering environmental responsibility.

2. ABOUT THE COLLEGE

St. Xavier's College, which was established in 1923, celebrates its 102 years of existence at Palayamkottai, and aims at training of young men of quality to be leaders in all walks of life so that they may serve the people of our nation in truth, justice and love. Accordingly, this College is to be an agent of social change, instilling in the youth an awareness of the great need in our country of social justice based on brotherhood and dignity of the human person. Thus, it aims at making its own contribution towards a transformation of the present social conditions, so that justice, equality and the moral values enshrined in the Constitution of India may prevail in the daily life of every citizen. The aim of St. Xavier's is the sound formation (religious, intellectual, social and physical) of the young based on Christian principles.

In 1987, the college became an Autonomous Institution. The College was accredited with Five Star status by the National Assessment and Accreditation Council (NAAC) on 17th April 2000. UGC conferred on our College the status of "College with Potential for Excellence" in 2004 and for the second time in 2010. The College was re-accredited with 'A' Grade by NAAC in April 2006.In the third cycle of NAAC reaccreditation (2012), the college received 'A' grade with the CGPA of 3.50. In the year 2019 In the fourth Cycle of NAAC reaccreditation (2019), the college received 'A++" grade with the CGPA 3.66 out of 4. In the year 2014, Department Biotechnology (DBT) selected our college under 'Star College Scheme' and for the second time in 2017. The National Institute Ranking Framework (NIRF) ranked our college in the 48th position in 2025.

2.1 Motto of the College

Veritate Lumen et Vita (Light and Life through Truth)

2.2 Vision of the College

To mould young men and women as leaders in all walks of life so that they may serve the people especially the poor and the oppressed of our nation in truth, justice and love.

2.3 Mission of the College

- To achieve a synthesis of academic excellence and formation of character
- To ensure social justice through equity and access
- To include the excluded for empowerment
- To equip students with global competencies
- To engage in relevant research activities
- To promote Lab to Land through Outreach Programme (STAND)

2.4 CAMPUS INFRASTRUCTURE

Fr. Leabeau Auditorium

The college boasts of an auditorium with a seating capacity of 1500 for academic and cultural activities.

Loyola Hall for Student Activities

The college has a Loyola Hall which can accommodate 400 students, aimed at conducting small scale events like department functions, club activities and meetings of various student support organizations.

Seminar and Conference Halls

The college has five seminar halls, equipped with audio-visual facilities for the smooth conduct of seminars, conferences and other activities.

S. No	Hall Name	Length in Feet	Width in Feet	Accommodate strength
1	Fr. Caussanel Hall(A/C)	50	32	180
2	Fr. Lebeau Auditorium	146	45	800
3	Loyola Hall	120	45	600
4	MCA Seminar Hall (A/C)	50	22	120

5	Fr. Miranda Hall (A/C)	45	22	110
6	Conference Hall (A/C)	36	19	40
7	XIBA Conference Hall	59	25	120
8	Prof. Peter Paradesi Hall	**83**	35	300

Library

The college library is fully computerized and digitalized with Machine Readable Catalogue facility and has a collection of over 1,34,000 books and a subscription of about 122 periodicals and journals. Internet browsing is also available.

Language Lab

There is a language lab in the Department of English to facilitate the students to fine tune their communication skills.

Computer Labs

1. There is a centralized computer center housed in the Library which is accessible to the students from 08.00 a.m. to 06.30 p.m.
2. There is a well-equipped computer lab associated with the Department of Computer Application.
3. Department of Botany has a computer lab for the course titled 'Bioinformatics'.
4. Department of Mathematics has a computer lab for the software training related to mathematics.
5. Department of Commerce has a computer lab for the use of teaching and research.

Student Support Facilities

The college has a centralized computer center, stationery shop, photocopiers, and canteen.

Canteen

The college canteen caters to the nutritional needs of the staff and students at subsidized rates. The canteen functions from 8.30 am to 5.30 pm.

Hostel

The boy and girl students are provided neat and safe residential accommodation at three well equipped hostels in the vicinity of the college.

Sports and Games facilities

The College has a 400 meters Track & Field, Basket Ball Court, Volley Ball Court, Shuttle Badminton Court, Hockey Ground, Football Field, Table Tennis, etc.

Green House and Herbal Garden

- The botanical garden has a collection of rare herbs, shrubs, and trees.
- The Botany department has a collection of indigenous and rare herbs and medicinal plants used for pharmaceutical purposes.

Other facilities

A branch of the SBI with ATM facility functions in the college campus.

3. CONTEXT

The National Assessment and Accreditation Council (NAAC), New Delhi, has made it obligatory from the academic year 2016-2017 onwards that all Higher Educational Institutions should submit an annual Green Audit Report. It has become part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures.

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

Until 2016, surveying of the flora and fauna of the campus of St. Xavier' College (Autonomous) had been done regularly; Energy Auditing had been regularly conducted. In view of the NAAC circular regarding Green Auditing, the College Management decided to conduct a Green Evaluation by a Green Audit Assessment Team headed by Rev. Fr. Dr. Godwin Rufus, S.J, Principal St. Xavier's College (Autonomous), Palayamkottai. The auditing was done for the period from 01.08.2025 to 03.09.2025.

UAP 4 of Society of Jesus states "Collaborate with Gospel Depth for the Protection and Renewal of God is Creation". PAP 2 of Jesuit Madurai province states "Preserving and Protecting the Environment and Safegaurding the Rights of those Affected by Environment Degradation.

4. GREEN AUDIT

4.1. The Goals of Green Audit

- To secure the environment and cut down the threats posed to human health.
- To avoid interruptions in environment that is more difficult to handle.
- To suggest best protocols for adding to sustainable development Health and safety practices.

4.2. Scope and Objectives of Green Audit

- To make the St. Xavier's College campus 'Go green'.
- To identify ways and means to save energy.
- To ensure the control measures to prevent adverse effects like pollution.
- To reduce waste and to dispose waste.
- To see that proper steps have been taken for maintaining health and welfare of the students and staff of the St. Xavier's College.

4.3. Benefit of Green Audit

- Helps to shield the environment
- Recognizes the cost saving methods through waste minimizing and managing
- Points out the prevailing and forthcoming complications
- Authenticates conformity with the implemented laws
- Empowers the institutions to frame a better environmental performance
- Portrays a good image of an institution which helps building better relationship with the group of stakeholders
- Enhances the alertness for environmental guidelines and duties
- To create plastic free campus and evolve health consciousness among the stakeholders
- Recognize the cost saving methods through waste minimizing and managing

4.4. Selection of Audit Team

This Audit has been conducted by a committee constituted by the Principal of St. Xavier's College. The committee brainstormed and evolved a method collecting the basic data and analyzed. The remaining data which involved measurement of quality was entrusted with the Department of Botany, Zoology and Chemistry. By and large, the audit reveals a healthy environment in campuses. The committee has made short term and long-term suggestions to take environment protection to higher levels and it is hoped that this will receive due attention of authorities and all stakeholders of the college.

The following are the members of the Green Audit Team:

S. No	Name	Designation
1.	Rev. Fr. Dr. Godwin Rufus, S.J.	Principal & Chairman
2.	Dr. A. Lourdusamy	Deputy Principal
3.	Dr. R. Azhagu Raj	Director, IQAC
4.	Dr. J. Sahaya Mary	Asst. Director of IQAC
5.	Dr. L. Joelri Michael Raj	Head (i/c) Dept. of Botany
6.	Rev. Fr. Dr. M. Anthony Samy, S.J.	Director, SXC Climate Cell
7.	Dr. S. Stanly John Xavier	HoD, Department of Chemistry
8.	Dr. M. Johnson Gritto	Assistant Professor of Botany & Coordinator, UBA
9.	Dr. N. Maria Francis Jeffrey Bose	Assistant Professor of Botany & Coordinator, ENVIRO CLUB
10.	Dr. S. Anna Venus	Assistant Professor, Dept. of Physics
11.	Dr. S. Mutheeswaran	Scientist cum Assistant Professor, XRF
12.	Mrs. S. Santha Priya Vathani	Typist, IQAC

4.5. Plan of the Audit

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 adopted to conduct the Green Audit of the Institution had the following components:

1. **Data Collection**: It is done through observation, survey communicating with responsible persons and measurements. Following steps were taken for data collection:

- The team went to each department, centers, Library, canteen etc.
- Data about the general information was collected by observation and interview.

2. **Data Analysis**: Detailed analysis of data collected include: calculation of energy consumption, analysis of latest electricity bill of the campus, understanding the tariff plan provided by the Tamil Nadu State Electricity Board (TNSEB).

3. **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.

4.6. Green Audit Time Frame

The Green Audit Assessment Team started the audit at the Institution on 01.09.2026 to 03.09.2026. The team assessed the green cover of the institution and the greenhouse gas emissions and carbon footprint reduction through adoption of green energy and energy-efficient measures.

4.7. Discussion with Stakeholders

The team met the Enviro Club members, staff members and management people. The discussion was focused on identifying the attitudes and awareness towards environmental issues at the institutional, district, national and global level. The discussion revolved around three key questions: Do the members of the group consider themselves eco-conscious? Do they consider the Institution to be ecofriendly? What do they think are the issues that need to be given top priority?

4.8. Target Areas of Green Auditing

Green audit forms part of a resource management process. Although they are individual events, the real value of green audits is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time.

Eco-campus concept mainly focuses on the efficient use of energy and water; minimize waste generation or pollution and also economic efficiency.

All these indicators are assessed in process of "Green Auditing of educational institute." Eco-campus focuses on the reduction of contribution to emissions, procure a cost effective and secure supply of energy, encourage and enhance energy use conservation, promotes personal action, reduce the institute's energy and water consumption, reduce wastes to landfill, and integrate environmental considerations into all contracts and services considered to have significant environmental impacts. Target areas included in this green auditing are water, energy, waste, green campus and carbon footprint.

Animal diversity

Our campus has a rich faunal wealth and diverse ecological communities performing a variety of functions. This diversity is modified at times and tried to sustain itself in changing conditions. There are around 125 species of animals are recorded which are represented by 68 sp of Invertebrate fauna mainly Phylum Arthropoda and 57 species of vertebrates which are represented by class Amphibia, Reptiles, Aves and Mammalia. Butterflies are abundant in population. Migratory and seasonal birds were also recorded. Insects and birds are the dominant invertebrate and vertebrate fauna.

Invertebrates

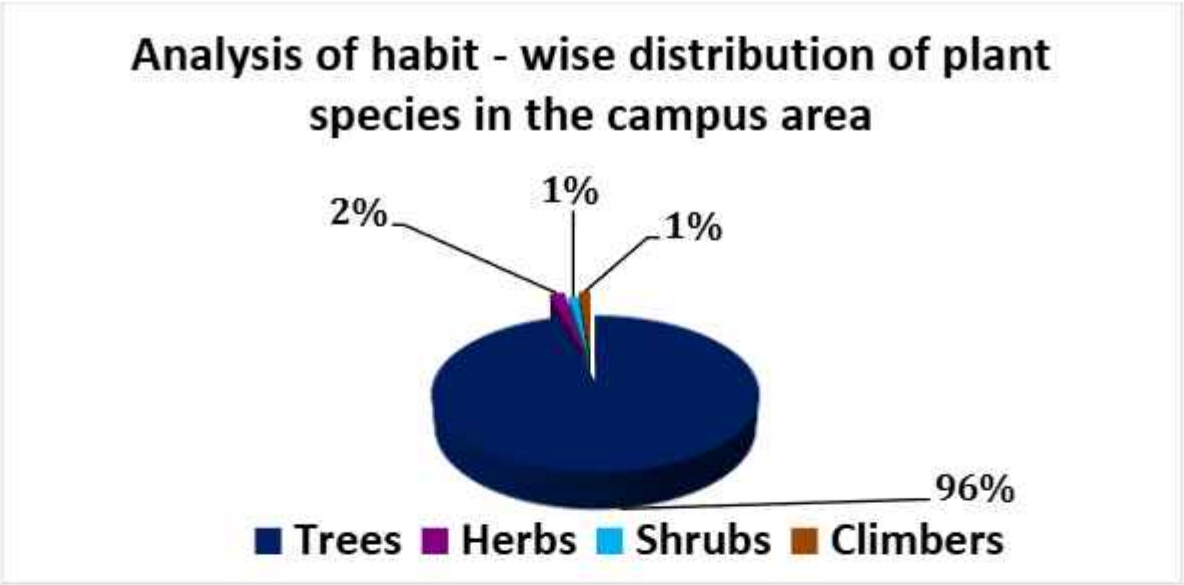
Phylum: Arthropoda

A total number of 62 species of insects belonging to 10 orders iz., Odonata Orthroptera, Dermaptera, Mantodea, Hemiptera, Coleoptera, Neuroptera, Diptera, Lepidoptera and Hymenoptera

S. No	Areas	Number of Trees
1.	Church front and entrance road	35
2.	Mary Matha Gebi Backside	13
3.	St.Loyoloa Statue Back side	31
4.	Fathers' house Garden	366

5.	Fathers' House front side	23
6.	Fathers' house card parking	36
7.	Boys sitting area	26
8.	Girls sitting area	20
9.	Man building front side	34
10.	Maritime logistics department back side	7
11.	XRF	33
12.	Economics department back side	7
13.	Near Jesus |Statue	4
14.	Near STAND department	4
15.	Lebo auditorium back side road side	7
16.	Lebo auditorium back side	36
17.	Near Bank area	19
18.	Folklore department side	60
19.	Boys bike parking	70
20.	Girls scooter parking	12
21.	Staff parking side	23
22.	Loyola hall back side	22
23.	Herbal garden area	39
24.	NCC	26
25.	Centenary building back side near XRF	8
26.	Centenary building	40
27.	Canteen	11
28.	Canteen front side	58
29.	Staff room back (centenary building)	23
30.	principal office back side	61
31.	Near Pope Francis auditorium	70
32.	Indore Stadium front side	47
33.	XIBA parking road	62

34.	St. Joseph Statue	41
35.	XIBA (including banana tree 5)	139
36.	D'Souza block and church back side	107
37.	Ladies hostel (including banana tree 7)	99
38.	Boys Hostel entrance and ground	85
39.	garden and near prayer hall	164
40.	Nehru block	30
41.	Auditorium side	7
42.	Loyola block	104
43.	Loyola block back side	10
44.	Hostel back side garden	409
45.	Stadium	91
46.	Coconut tree	250
47.	Stadium back side	3
48.	Inside the Xavier Academy	5
49.	Outside the Xavier academy road side government tree	3
50.	Tennis ground inside area	8
51.	Tennis ground outside area government tree	16
52.	Library front side	65
53.	College outside government tree	23
54.	College outside our campus tree	64
55	Mother Teresa Ladies Hostel	268



S. No.	Order	Common name	Binominal Name
1.	Orthoptera	Short horned grasshopper	*Shistocera sp*
2.		Cricket	*Gryllidae sp.*
3.	Mantodea	Praying mantis	*Mantodea sp.*
4.	Neuroptera	Ant lion	*Indoclystus sp.*
5.	Phasmida	Stick insect	*Phasmatodea sp.*
6.		Walking stick	*Carausius morosus*
7.		Termite	*Macrotermes bellicosus*
8.	Diptera	House fly	*Musca domestica*
9.		Mosquitoes	*Culex sp*
10.		Robber fly	*Asilidae sp.*
11.	Hemiptera	Red cotton bug	*Dysdercus cingulatus*
12.		Rice earhead bug	*Leptocorisa acuta*
13.		Assassin bug	*Sycanus verisicolor*
14.		Cucurbita bug	*Aspogonopus janus*
15.		Cochineal insect	*Dactylopius coccus*
16.		Lac insect	*Laccifer lacca*
17.	Hymenoptera	Carpenter bee	*Xylocopa sp.*
18.		Honey bee	*Apis indica*
19.			*Apis florae*
20.			*Melipona sp.*

21.		Weaver ant	*Oecophylla smaragdina*
22.		Red tree ant	*Formicidae*
23.		Ant	*Dorylus labiatus*
24.	Coleoptera	Rhinoceros beetle	*Oryctes rhinoceros*
25.		Ground beetle	*Carabidae sp*
26.		Blister beetle	*Mylabris sp.*
27.		Blister beetle	*Mylabris spp*
28.	Odonata	Ditch jewel	*Brachythemis contaminate*
29.		Ruddy marsh skimmer	*Crocothemi sservilia*
30.		Common picture wing	*Rhyothemis variegate*

S. No	**Lepidoptera**	***Common name***	***Scientific name***
31		Indian skipper –	*Spialia galba*
32.		Tailed jay	*Graphium agamemnon*
33.		Common mormon	*Papilio polytes*
34.		Blue mormon	*Papilio polymnestor*
35.		Lime butterfly	*Papilo demoleus*
36.		Commom rose	*Pachlio ptaaristolochiae*
37.		Crimson rose	*Pachliopta hector*
38.		Southern birdwing	*Troides minos*
39.		White orange tip	*Ixias marianne*
40.		Common jezebel	*Ddelias eucharis*
41.		Psyche	*Lepto sianina*
42.		Greater orange tip	*Hebomoia glaucippe*
43.		Small salmon arab	*Colitis amata*
44.		Large salmon arab	*Colitis fausta*
45.		Little (small) orange	*Tip colitis*
46.		Common emigrant	*Catopsilia pomona*
47.		Small gress yellow	*Eurema brigitta*
48.		Commomgress yellow	*Eurema hecabe*

49.		Common pierrot	*Castalius rosimon*
50.		Striped pierrot	*Tyarucus nara*
51.		Indian cupid	*Everes lacturnus*
52.		Tiny grass blue	*Zizula hylax*
53.		Small gress jewel	*Freyeria putli*
54.		Grass jewel	*Freyeria trochylus*

S.No	*Scientific name*	*Common name*
1.	*Heteropneutus fossilis*	Theli
2.	*Etroplus surantensis*	Peal spot
3.	*Oreochromis niloticus*	Tilapia
4.	*Etroplus maculatus*	Pearl spot
5.	*Clarias batrachus*	Karupputheli
6.	*Channa straitus*	Viral
7.	*Clarias gariepinus*	Theli
8.	*Hypselobarbus jerdoni*	Jerdon's carp
9.	*Dawkinsia filamentosa*	blackspot barb
10.	*Puntius amphibious*	Scarlet-banded barb
11.	*Pseudosphromenus upanus*	Moran kendai

Reptiles

S. No	*Scientific name*	*Common name*
12.	*Oligodontaeniolatus*	Russell's kukri
13.	*Lycodoncapucinus*	Common wolf snake
14.	*Ptyas mucosa*	Rat snake
15.	*Najanaja*	Spectacled cobra
16.	*Echiscarinatus*	Saw scaled viper
17.	*Ahaetullanasuta*	Green vine snake
18.	*Dendrelaphistristis*	bronze back tree snake
19.	*Indotyphlopsbraminus*	Brahminy Blind Snake
20.	*Calotesversicolor*	Oriental garden lizard

21.	*Hemidactylusfrenatus*	Common house geko
22.	*Hemidactylustriedrus*	Termite hill gecko

Birds

S. No	*Scientific name*	*Common name*
23.	*Leptocoma zeylonica*	Purple-rumped sunbird
24.	*Megalaime zeylanic*	Brown-headed barbet
25.	*Turdoides caudata*	Common babbler-
26.	*Pseudibis papillosa*	Red-naped ibis
27.	*Plegadis falcinellus*	Glossy ibis-
28.	*Pavo cristatus*	Indian peacock
29.	*Acridotheres tristis*	common myna
30.	*Corvus splendens*	House crow
31.	*Dendrocitta vagabunda*	Rufous Tree pie
32.	*Halcyon smyrnensis*	white-throated kingfisher
33.	*Psittacula krameri*	Rose-ringed parakeet
34.	*Vanellus malabaricus*	yellow-wattled lapwing
35.	*Spilopelia chinensis*	spotted dove
36.	*Merops orientalis*	Green bee-eater
37.	*Dicruridaemacrocercus*	black drongo
38.	*Eudynamysscolopaceus*	Asian koel-
39.	*Centropusparroti*	barn owl-tylo alba
40.	*Saxicoloidesfulicatus*	southern coucal-
41.	*Motacilla*	Indian robin
42.	*Anthusrufulus*	black kite-
43.	*Milvusmigrans*	shikra-accipiter babius
44.	*Haliasturindus*	brahminy kite-
45.	*Accipiter*	shikra

46.	*Elanusaxillaris*	black-shouldered kite
47.	*Athenebrama*	spotted owlet
48.	*Orthotomus*	Tailorbirds
49.	*Prinainornata*	Plain Priniap
50.	*Bubulcus ibis*	Cattle egret
51.	*Egrettagarzetta*	Little egret
52.	*Coraciasbenghanlensis*	Indian roller

Mammals

53.	***Funambuluspalmarus***	**Indian palm squirrel**
54.	*Herpestesedwardsii*	Indian grey Mongoose
55.	*Peropusgiganteus*	Indian flying fox
56.	*Rattusnorvagicus*	Brown Rat
57.	*Musmusculus*	House mouse

Our campus supports a quite lot of biodiversity of animals; however, implementing following conservation measures is the immediate need to sustain it.

Plantation of more trees, shrubs and grasses for conserving insect population that would increase birds population; habitats with more biodiversity should be identified and free from any disturbance; installation of nest boxes/ bird houses/bird feeder/bird baths around the campus to attract more birds; restoring the habitat that give food, water, cover to wild life; replacing hard surface area with permeable pavement to water; preserving native plants and shrubs which attracts pollinators and other beneficial insects; creating a wild life garden (buffer zone); banning usage of pesticides inside the campus

Encouraging students to participate actively in Environ club activities; organizing lecture workshop on biodiversity conservation for teaching and non-teaching and students to enrich their knowledge, installation of wild life posters to show the list of distributed animals with photograph, conservation steps in our

campus; installation of sign board that encourage students not to pollute the environment; organizing student level discussion regarding conservation of animals and ecosystem; incorporating environmental topics in lesson plan across all subjects; banning live animal collection for research; preparing an environmental newsletter about activities, conservation steps and report of animals seen.

Recently initiated Landscaping in thecampus with Korean grass (*Zoysia Sp.) and Croton Sp. (Euphorbiaceae)*

Recent Establishment of Front side lawns (Zoysia sp.) with Palm variety (Roystonia Regis) and hedge plant *Acalypha Sp.*

Predominant medicinal Tree Plantations (Terminalia catappa – Combretaceae & Wrightia tinctoria – Apocyanaceae)

GREEN COVER CAMPUS

GREEN COVER CAMPUS

TREES IN THE CAMPUS

TREES IN THE CAMPUS

TREES IN THE CAMPUS

TREES IN THE CAMPUS

XAVIER SOLAI

"Promoting Agro-Tourism in Xavier Solai" (Agro, Eco, Biodiversity Park)

Short overview

Promotion of Agro-tourism in Xavier Solai is a continuation project. Xavier Solai is being maintained well. A compound wall of about 400 feet has been constructed on the front side of Xavier Solai. The remaining area around Xavier Solai has been fenced with iron net supported by stone pillars. A 41 seater air- conditioned bus was purchased for Xavier Solai which is used to transport students. In front of the training hall, 40 stone sit-outs were constructed. Forty chairs and Audio system were also purchased for Xavier Solai training hall. Work on the children's play station is going on. A 120 sq-ft sized room has been selected for oyster mushroom production in Xavier Solai. About fifteen honey bee boxes were installed at a 10 feet gap. Sericulture work has been started also. Environmental and sustainable organic agriculture awareness and training programs are being provided regularly for students, farmers and women self help groups. Additionally, allied agriculture business trainings such as mushroom cultivation and beekeeping are being provided. Siddha doctors, college, school students, government officials from forest department, environmentalist, farmers and NGOs staff members have visited Xavier Solai.

Stone Sit - outs

Forty stone sit-outs were constructed in front and on both sides of the training hall in Xavier Solai. Each sit-out is 3 feet long, 2 feet high, and 1.5 feet wide, and they help participants refresh themselves during break times.

Infrastructure facilities in training hall

Forty plastic chairs and audio systems were purchased. Because, the training hall is about 120 feet long, the audio system is important requirement.

Xavier Solai gardens Maintenance (Agro Eco Biodiversity Park)

Different gardens established in Xavier Solai are maintained well.

Mushroom cultivation unit

An old room of about 120 sq ft was selected for oyster mushroom cultivation. The unit produces an average of 3 – 4 kg mushroom per day. White oyster, pink oyster, and milky mushrooms are cultivated in this unit. We provide training to students, farmers and women self-help groups.

Initiation of apiculture unit:

Fifteen beekeeping boxes for honey production have been set up on a two-cent plot of land in Xavier Solai. The active season lasts for eight months, from November to June, while the remaining four months are considered the off-season. The main objective is to provide training to students, farmers, and women's self-help groups.

Initiation of sericulture

The drought-resistant mulberry variety TR2 has been planted as a model sericulture plot on two cent of land. The plot is being well maintained. The primary goal is to provide training for students, farmers, and women's self-help groups.

Awareness camps in schools and Xavier Solai

We successfully conducted the awareness and sustainable organic agriculture training programme in 15 schools. Many students from various schools visited the Xavier Solai gardens to receive environmental awareness training.

Staff members from colleges participated in the visit. Siddha medical college students and doctors visited. Some of them planted saplings also.

Awareness and training programs for farmers

Awareness programmes and training sessions on sustainable organic agriculture, beekeeping, and mushroom cultivation were conducted for farmers.

Xavier Solai visit from different fields

Many NGO members, environmentalists, industrialists, agronomists, educationists, traditional Siddha practitioners, and some staff from the Forest Department visited Xavier Solai.

List of Beneficiaries in the last six months

Students visiting Xavier Solai	753
Students in schools	850
Farmers	152
Farmers beekeeping	20
Farmers mushroom	60
Farmers Silkworm	20
Women from SHG beekeeping	25
Women from SHG mushroom	60
Women from SHG silkworm	25
Siddha doctors	225
General public	400
NGOs & NPOs.	60
Eco-activists.	30
Total	2680

Picture 1. Compound wall

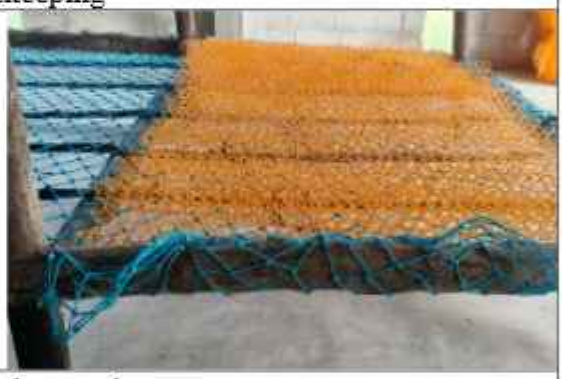
Picture 2. Fence

Picture 3. Air conditioned Bus outer and inside view

Picture 4. Stone Sit outs


Picture 5. Mushroom cultivation unit


Picture 6. Beekeeping

Picture 7. Sericulture unit


Picture: school students visit Xavier solai

Picture : Awareness and training program for school students










Picture: Arts and Science College and Siddha college students visit Xavier Solai

NGOs and women self help group members visit Xavier Solai

Pictures : Awareness and training program on sustainable organic agriculture and allied business for farmers

Pictures: General public, Forest department visit and Plantation programs in Xavier solai

Indigofera linnaei

Croton sparsiflorus L.

Celosia argentea L.

Evolvulus alsinoides L..

Euphorbia cyathophora Murray.

Euphorbia hirta L.

Gomphrena decumbens Jacq.

Gomphrena globosa L.

Corchorus trilocularis L.

Merremia tridentata

Justicia adhatida L.

Lantana camara L.

Leucas aspera L.

Merremia hastata L.

Micrococca mercurialis (L.) Benth.

Mollugo nudicaulis L.

Ocimum sanctum L.

Sida cordifolia L.

Sida acuta L.

Pedalium murex L.

Abutilon indicum (L.) Sweet.

Acalypha indica L.

Achyranthus aspera L.

Aerva lanata (L.) Juss.

Amaranthus spinosus L.

Amaranthus viridis L.

Andrographis paniculata (Burm.f.) Wall. L.

Anisomeles malabarica R. Br.

Barleria prionitis L.

Biophytum sensitivum (L.) Dc.

Calotropis gigantea L.

Cardiospermum halicacabum L.

Carica papaya L.

Cassia angustifolia L.

Cassia senna L.

Cassia nigricans

Cassia ariculata L.

Cleome viscosa L.

Clitria ternatea L.

Commelina benghalensis L.

Tephrosia purpurea

Tephrosia apinoa

Trianthema portulacastrum

Vernonia cinerea

Apluda mutica

Aristida adscensionis

Cynodon dactylon

Chrysopogon aciculatus

Brachiaria ramosa

Cenchrus ciliaris

Digitaria bicarnis

Dactyloctenium aegypticum

Vitex negundo

Zizypus jujuba

Chloris barbata

Chloris gayana

Andropogon glomeratus

Alloteropsis cimicina

Cymbopogon martinii

Aristida funiculata

Apluda mutica

Aristida adscensionis

Cynodon dactylon

Chrysopogon aciculatus

Brachiaria ramosa

Cenchrus ciliaris

Digitaria bicarnis

Dactyloctenium aegypticum

Sporobolous tremulus

Trachys muricata

Cyperus compresses

Cyperus haspan

Tragus roxburghii

Bulbostylis barbata

Cyperus triceps

Fimbristylis miliacea

Kylinga brevifolia

Mariscus squarrousus

Cyperus defformis

CYPERUS ESCULENTUS

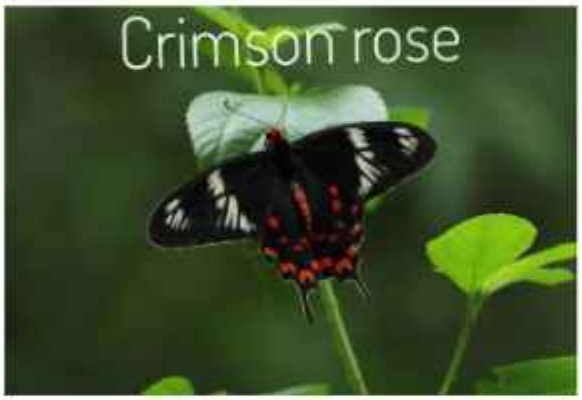
Tree Planting








Common Butterflies



Common Reptiles

Common birds and insects


Babbler


Ditch jewel


crimson marsh glider


common picture wing

5. CARBON AUDIT

Carbon Audit Tools and Analysis:

The Carbon Audit tools and analysis methodology were developed collectively by the Green Audit Team and based on that the audit was conducted.

Location, Area and Activity of Campus

Campus Type	Address	Location	Campus Area in	Built up Area in sq.
Main Campus Area	21, North High ground Road, Palayamkottai	Urban	58	16,296.67 + 179.1
		Semi Urban		
		Rural		
		Tribal		
		Hill		

Floristic Status of the Institution

St. Xavier's College is located in about 58 acres of land in the heart of Palayamkottai town in the city of Tirunelveli district.

Taxon of the St. Xavier's College Campus: Floristic Diversity

Group	*Genus*
Algae	*Oscillatoria*
	Chara
Fungi	*Agaricus*
	Polyporus
	Ganoderma
Bryophytes	*Riccia*
	Marchantia
	Reboulia
Pteridophytes	*Adiantum*
	Pteris
	Nephrolepis
	Azolla
Gymnosperms	*Cycas*
	Araucaria
	Cupressus

The Enviro Club members of the College and the students of Botany department with help of teachers counted the number of plants: full-grown trees (above 10 years), semi-grown trees(below 10 years), shrubs and lawn (sq.ft. area). **(Annexure attached).**

Figure 1

Table 3. Floristic Diversity of Trees and their saplings

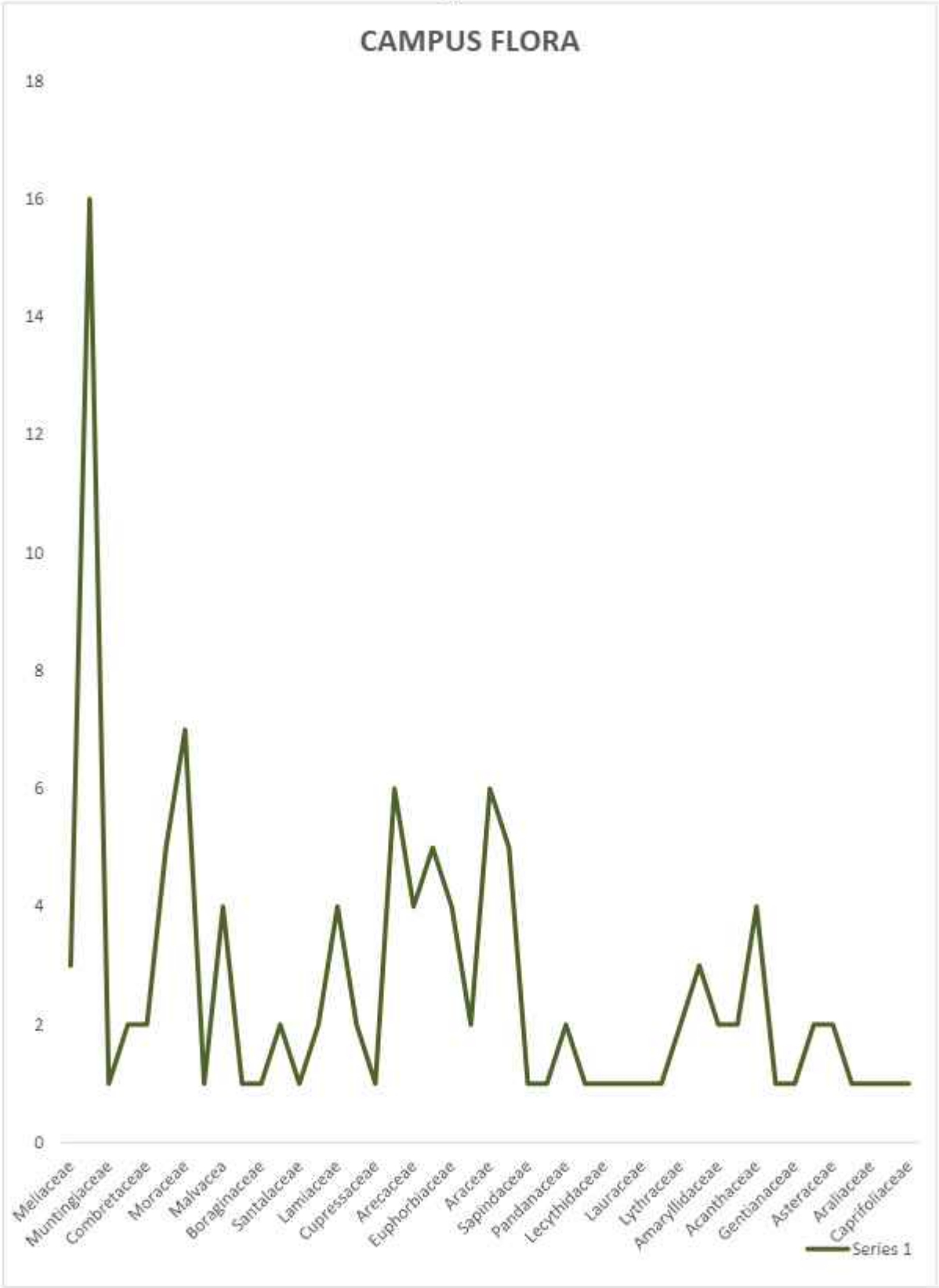
S. No.	Scientific Name	S. No	Scientific Name
1.	*Azadirachta indica*	2.	*Morus alba*
3.	*Acacia sps.*	4.	*Muntingia calabura*
5.	*Anona squamosa*	6.	*Murraya koenjii*
7.	*Araucaria sp.*	8.	*Mussaenda sp.*
9.	*Bauhinia purpurea*	10.	*Nerium oleander*
11.	*Caryota urens*	12.	*Odina wodier*
13.	*Cassia fistula*	14.	*Pelthophorum pterocarpum*
15.	*Cassia roxburghii*	16.	*Plumeria alba*
17.	*Cordia dichotoma*	18.	*Polyalthia longifolia*
19.	*Dalbergia latifolia*	20.	*Pongamia pinnata*

21.	*Delonix regia*	*22.*	*Ravenala madagascariensis*
23.	*Ficus microcarpa*	*24.*	*Samanea saman*
25.	*Ficus religiosa*	*26.*	*Santalum album*
27.	*Gmelina sps.*	*28.*	*Senna auriculata*
29.	*Guazuma tomentosa*	*30.*	*Swietenia macrophylla*
31.	*Hardwickia binata*	*32.*	*Syzygium cuminii*
33.	*Hibiscus rosasinensis*	*34.*	*Tabeubia rosea*
35.	*Ixora coccinea*	*36.*	*Tamarindus indicus*
37.	*Kigelia pinnata*	*38.*	*Tecoma stans*
39.	*Majidea Zangueberica*	*40.*	*Tectona grandis*
41.	*Millingtonia hortensis*	*42.*	*Terminalia catappa*
43.	*Mimusops elunji*	*44.*	*Terminalia sp.*
45.	*Morinda tinctoria*	*46.*	*Thespesia populnea*
47.	*Moringa oleifera*		

Green Area of the Campus

Grass Area			
Place	**Length**	**Width**	**Total**
In front of the Library	156	40	6240
	137	6	822
	115	5	575
Western side of jubilee block	33	60	1980
St. Francis statue	30	25	750
	30	15	450
Eastern side of Fr. Antonysamy Block	155	14	2170
	65	20	1300
	10	12	120
Gate	60	40	2400
Western side of Susai block	60	36	2160
Total Area in Sq. Feet			18967

Figure 3


CAMPUS FLORA
18
16
14
12
10
8
6
4
2
0
Meliaceae
Muntingiaceae
Combretaceae
Moraceae
Malvacea
Boraginaceae
Santalaceae
Lamiaceae
Cupressaceae
Arecaceae
Euphorbiaceae
Araceae
Sapindaceae
Pandanaceae
Lecythidaceae
Laurareae
Lythraceae
Amaryllidaceae
Acanthaceae
Gentianaceae
Asteraceae
Araliaceae
Caprifoliaceae
Series 1

Carbon dioxide (CO_2) emissions are a major contributor to climate change. When fossil fuels are burned, carbon that has been locked away for millions of years is released into the air, causing the Earth's temperature to rise.

Since trees have a vital role in the balancing of $CO_2$and oxygen levels, widespread deforestation across the world has also had a negative impact by releasing more CO_2into the atmosphere.

The rise in global temperature is causing more extreme weather events, rising sea levels, warmer oceans and threats to animals and plants that are unable to adapt to the rapid changes. If carbon emissions continue unchecked, the impacts of climate change will be potentially catastrophic to people and wildlife.

Planting trees is an effective way to offset the carbon emissions and improve the natural environment for the benefit of climate, wildlife and people.

In our campus, during the audit 1331 fully-grown trees and 665semi-grown trees were found planted. The Enviro club members of the College counted the number of plants: full-grown trees (above 10 years), semi-grown trees (below 10 years), shrubs and lawn (sq.ft. area).

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 kilometres covered by a car per litre of petrol is 20 km
5. Total quantity of petrol consumed by the car (41,843/20) = 2092 litres The carbon emitted by a car due to consumption of 1 litre of petrol is 2.3 kg $_{CO2}$. At this rate the total quantity of carbon emitted by 2092 litres of petrol (2092 × 2.3 kg) = 4812 kg CO_2 or 4.8 tonnes of CO_2.

Therefore, the carbon absorption of one full-grown tree is 4812/700 = 6.8 kg CO_2. The footprint calculation is based on the standard unit of 1 litre petrol = 2.3 kg CO_2.

Carbon absorption by flora in the Institution

Carbon absorption capacity of one fully-grown tree = 6.8 kg CO_2.

1. Therefore, the carbon absorption capacity of 3324 fully-grown trees in the campus of the Institution (3324 × 6.8 kg CO_2) = 2261 kg or 22.61 tonnes of CO_2.
2. Buffalo variegated grass, Mexican grass and indigenous grass species are being raised and maintained in the lawn. The total area of the lawn is 23463 sq.ft. The carbon absorption capacity of a 10-sq.ft. area of lawn is 1 g CO_2. Hence, 23463 sq.ft. of lawn absorbs 2346.3 g or 2.35 kg CO_2 per day. At this rate, the total carbon absorption per year (2.35 kg × 365) = 0.86 tonnes per year. The grand total of carbon absorption by the flora in the campus of St. Xavier's College is (1+ 2+ 3) = 12.0 tonnes. This is the sink effect of the flora in the campus.

Tool to measure oxygen emission by flora in the campus

According to the Arbor Day Foundation, 'a mature leafy tree produces as much oxygen in a season as 10 people inhale in a year'.

A person breathes 7 or 8 litres of air per minute. Air is about 20% oxygen. But the exhaled air has about 15% oxygen, and hence the net consumption is about 5%. Therefore, a person uses about 550 litres of pure oxygen each day.

Calculation of oxygen emission by flora

The number of litres in 1 kilogram depends on the density of the substance being measured. Litre is a unit of volume, and kilogram a unit of mass. Litres and kilograms are approximately equivalent when the substance measured has a density of close to 1 kilogram per litre. On average, one full-grown tree produces nearly 260 pounds or 117.6 kg of oxygen each year. Two mature trees can provide enough oxygen for a family of four.

1. Total oxygen emitted by 3324 full-grown trees per year (117.6 kg × 3324) = 38773 kg or 387.73 tonnes.
2. Lawn is an incredible oxygen-making machine. A 25-sq.ft. area will supply enough oxygen to support one person for a day. Quantitatively speaking, this area of grass produces 550 litres of oxygen per day. The total area of lawn in the campus is 23463 sq.ft. In units, the value (18,967/25) = 759 units, which produce (759 × 550 litres of oxygen) = 417,274 litres of oxygen per day. Total quantity of oxygen produced by the 18,967 sq.ft. of lawn per year (417,274 litres/day × 365) = 152,305,010 litres or approximately 152,305 tonnes.

Carbon footprint reduction table

Carbon dioxide absorption

S. No	Flora	Quantity of CO_2 (tonnes)
1.	3324 fully-grown trees	22.61
2.	23463 sq.ft of lawn	0.86
	Total	**23.47**

Oxygen emission by flora

S. No	Flora	Quantity of O_2 (tonnes)
1.	3324 fully-grown trees	387.73
2.	23463 sq.ft of lawn	190575
	Total	**190962.73**

6. ENERGY AUDIT

Energy Audit deals with the energy conversation and methods to reduce its consumption and the related pollution. The auditor targets at the energy consuming methods adopted and find whether these methods are using the energy in a conservative way or not.

Energy cannot be seen, but we know it is there because we can see its effects in the forms of heat, light and power. This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliances, and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. An old incandescent bulb uses approximately 60W to 100W while an energy efficient light emitting diode (LED) uses only less than 10 W. Energy auditing deals with the conservation and methods to reduce its consumption related to environmental degradation. It is therefore essential that any environmentally responsible institution examine its energy use practices.

St. Xavier's College (Autonomous), Palayamkottai, has a well-developed academic and administrative infrastructure supported by a significant number of electrical and electronic facilities. The college campus consists of multiple academic blocks, support buildings, library facilities, sports spaces, auditoriums, and administrative sections that collectively contribute to the institution's teaching-learning environment and operational efficiency.

As part of its quality assurance and sustainable campus development efforts, the institution has undertaken an Energy Audit to document the available infrastructure, estimate connected electrical load, and identify opportunities for optimum energy use. The audit reveals that the institution possesses substantial electrical and electronic resources that directly support academic delivery, student learning, faculty engagement, administrative operations, and campus services.

The campus is further strengthened by the installation of an 83 kW solar photovoltaic (PV) system, which demonstrates the institution's commitment to

renewable energy, environmental sustainability, and reduced dependence on conventional electricity sources.

Carbon Accounting:

It undertakes the measure of bulk of carbon dioxide equivalents exhaled by the institution through which the carbon accounting is done. It is necessary to know how much the institution is contributing towards the sustainable development. The auditor considers several efforts practices by the institute to lower the Green House Gases in the atmosphere in order to make the campus more environmental friendly.

Energy Audit deals with the energy conversation and methods to reduce its consumption and the related pollution. The auditor targets at the energy consuming methods adopted and find whether these methods are using the energy in a conservative way or not.

It undertakes the measure of bulk of carbon dioxide equivalents exhaled by the institution through which the carbon accounting is done. It is necessary to know how much the institution is contributing towards the sustainable development. The auditor considers several efforts practices by the institute to lower the Green House Gases in the atmosphere in order to make the campus more environmental friendly.

The Energy Audit Report of the College during the period 2017-18 revealed that the total consumption of electricity was 263578.95 units. This includes air conditioners which consume about 20% of electricity.

One unit equals 1000 watts (1 kW hr). It requires 0.538 kg or approximately ½ kg of coal to produce 1 unit of electricity.

The total quantity of coal required to produce 263578.95units of electricity (263578.95 × 0.538 kg coal) = 1,41,805.47 kg or 141.8 tonnes.

CO2 emission by coal

One kilogram of coal emits 2.86 kg of CO_2, thereby increasing the carbon footprint which in turn contributes to global warming.

Therefore, 101.6 tonnes of coal consumed indirectly by the Institution through consumption of 263578.95 units of electricity led to the emission of (1,41,805.47kg of coal × 2.86 kg CO_2) 4,05,563.64 kg or 405.56 tonnes of CO_2 into the atmosphere.

Installing energy-efficient lighting system

Based on the recommendations of the Energy Audit conducted last year, the Institution has reduced CO_2 emissions indirectly by

1. Installing a 30 kwh solar PV power system
2. Replacing high energy-consuming electric bulbs with energy-efficient LED lighting systems. To understand the carbon emission reduction, it is appropriate to compare the units of electricity consumed between fluorescent tube lights and LED tubes.

Analysis of CO_2 reduction through the above measures

Installing energy-efficient lighting system

S. No	Contents	Value
1.	Total No. of fluorescent tube lights (40 W)	558
2.	Average energy consumption by 40 W fluorescent tube light	40 Wh
3.	Energy consumed by 558 lamps for 10 hr/day	223 kW hr or 223 units
4.	Energy consumption of 558 lamps for 275 days/year	57,311 kW hr or 57,311 units

S. No	Contents	Value
1.	Total No. of LED tube lights (20 W)	338
2.	Energy consumed by 338 LED for 10 hr/day	68 kW hr or 68 units
3.	Energy consumption of 338 CFL for 275 days/year	18,590 kW or 18,590 units

Academic Contribution

The Department of Physics offers skill enhancement and add-on courses on domestic appliance servicing and solar panel installation techniques. These courses aim to impart knowledge about safety measures to be followed during electrical wiring, solar energy harvesting using solar cookers, solar lanterns, and solar panels, as well as the use of solar water heaters and LED bulb manufacturing. These initiatives help promote energy conservation.

Research Contribution

In the Energy Research Laboratory, research scholars are actively engaged in exploring advancements aimed at reducing energy consumption. Their work focuses on solar energy harvesting using solar cells, energy storage using supercapacitors and batteries fabricated from biopolymers, and hydrogen fuel cells.

A significant research project titled "**High Durable Platinum-Based Oxygen Reduction Catalyst for Proton Exchange Membrane (PEM) Based Fuel Cells**" is being carried out in collaboration with Aatral Innovation Ltd., Chennai.

To create awareness about the use of renewable energy sources such as solar cells, energy storage devices using biomaterials, and hydrogen fuel cells—thus contributing to the reduction of carbon emissions—an International Conference-cum-Workshop on Nanomaterials Characterisation, Hydrogen Energy, and Fuel Cells was conducted on 18th and 19th February 2025.

Installation of Energy-Efficient PV Power System

Based on the recommendations of the energy audit conducted last year, the institution has indirectly reduced CO_2 emissions by installing an 80 kWh solar PV power system.

This system generates approximately:

320 units per day during 10 months of sunny days

→ 320 × 300 days = 96,000 units

160 units per day during 2 months of rainy season

→ 160 × 60 days = 9,600 units

Total annual energy generation: 1,05,600 units

The generated energy is utilized for street lighting and other electrical appliances, significantly reducing overall energy consumption.

Installation of Energy-Efficient Lighting System

The institution has also implemented energy-efficient lighting systems to further reduce electricity consumption and enhance energy conservation

Quantitative Overview of Major Electrical and Electronic Infrastructure

The audit of working-condition infrastructure shows the following key quantitative data:

Lighting Infrastructure

- Tube Lights – 1,376
- LED Lights – 293
- Light Bulbs – 5
- Total Lighting Points – 1,674

Ventilation and Cooling

- Ceiling Fans – 841
- Pedestal Fans – 13
- Wall Fans – 31
- Air Conditioners (AC) – 125
- Total Ventilation / Cooling Points – 1,010

IT and Office Infrastructure

- Computers – 586
- Laptops – 24
- Printers – 55
- Color Printer – 1
- Xerox Machines – 12
- Scanners – 3
- Line Printer – 1

- Batteries / UPS Units – 64

Teaching-Learning and Audio-Visual Equipment

- Projectors – 51
- Smart Board – 1
- Smart Panels – 5
- LED TVs – 10
- Speakers – 43
- Stand Microphones – 7
- Wireless Microphones – 3

Utility and Support Equipment

- Refrigerators – 12
- Micro Ovens – 1
- Vacuum Cleaners – 1
- Bio-Metric Machines – 1
- Aqua / Water Purifier Units – 9
- Type Writing Machines – 41

Sanitary / Rest Room Support

- Water Taps – 302

This quantitative infrastructure profile indicates that the college has sufficient electrical and utility facilities to support a dynamic and student-centered academic environment.

Qualitative Analysis of Energy-Dependent Infrastructure

The available infrastructure at St. Xavier's College reflects not only the size of the campus but also the institution's commitment to maintaining a functional and learner-friendly academic environment. The distribution of lighting, fans, cooling systems, computers, projectors, and communication equipment suggests that the institution has invested in creating spaces conducive to teaching, learning, administration, and co-curricular engagement.

Lighting Quality and Academic Functionality

The presence of **1,674 lighting points** indicates that classrooms, laboratories, offices, corridors, seminar halls, and support spaces are adequately illuminated. Lighting plays a crucial role in:

- ensuring visual comfort in classrooms and laboratories,
- enabling extended academic use during cloudy weather or evening hours,
- supporting library and administrative functioning,
- improving safety and accessibility within campus buildings.

Although tube lights still form a major share of the lighting load, the presence of **293 LED lights** shows that the institution has already initiated a partial transition toward energy-efficient lighting systems.

Thermal Comfort and Learning Environment

The institution has a substantial number of **fans and air-conditioning units**, which are important in a tropical climate like Tamil Nadu. The availability of:

- **841 ceiling fans**
- **31 wall fans**
- **13 pedestal fans**
- **125 AC units**

supports thermal comfort across classrooms, offices, seminar halls, labs, and special-use facilities.

Comfortable learning environments directly contribute to:

- improved student concentration,
- better faculty delivery,
- reduced fatigue,
- effective use of digital and seminar facilities.

Digital and Technological Support

The availability of **586 computers**, **24 laptops**, and **51 projectors** highlights the institution's strong emphasis on digital teaching-learning infrastructure. These facilities support:

- ICT-enabled teaching,
- practical learning in computer labs,
- digital presentations,
- seminar and workshop delivery,
- online administrative and academic processes.

The presence of **smart boards, smart panels, LED TVs, microphones, and speakers** indicates that the institution is progressively aligning with modern pedagogical methods and blended learning practices.

Administrative and Student Support Infrastructure

The availability of printers, xerox machines, scanners, UPS systems, and utility appliances supports institutional efficiency and continuity of academic and administrative work. Similarly, **302 water taps** indicate the presence of distributed sanitary and rest room support facilities that are essential for campus hygiene and student welfare.

Solar Energy Initiative – 83 kW Solar PV System

A significant strength of the campus is the installation of an **83 kW solar photovoltaic system**. This is an important step toward:

- reducing dependency on grid electricity,
- lowering electricity expenditure,
- minimizing carbon footprint,
- promoting green campus initiatives,
- strengthening institutional sustainability practices.

The solar installation should be highlighted as a **best practice** in NAAC, Green Audit, and sustainability reporting.

LED lamps in the campus

The Institution has installed 338 LED tube lights in the College campus. The power consumption and carbon footprint reduction are discussed below.

Formula for energy consumption

A 100-W bulb left on for 10 hr consumes 100 × 10 = 1000 W hr, i.e. 1 kW hr, which is 1 unit. Similarly, a 10-W bulb left on for 100 hr leads to the consumption of 1 unit of electricity.

The Institution procured 20-W bulbs numbering 338, which had been fixed in the campus.

Average power consumption analysis

Assumption

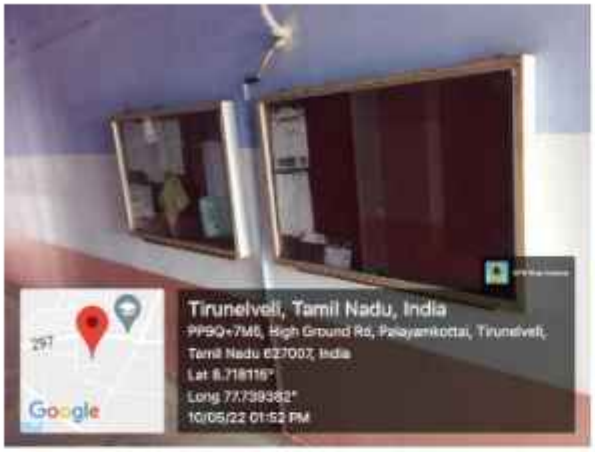
- On average, a bulb is on for 10 hours per day. The bulbs burn for 275 days a year. The remaining 90 days are considered holidays.
- Based on the above information, the total units of power consumed by 338 LED bulbs for 1 year at the rate of 10 hours per day is
- Watt rating of bulb × unit hour × quantity of bulbs × No. of days = Total units or kW hr.
- 20 W × 10 hr × 338 × 275 = 18,590,000 W, which is 18,590units of electricity.
- It is appropriate here to calculate the quantity of coal required to generate18,590units of electricity.
- 0.538 kg coal is required to produce 1 unit of electricity. Hence, the total
- Quantity of coal required to produce 18,590 units of electricity is 18,590×0.538 kg =**10,000 kg.**
- Carbon reduction through this measure is based on the calculation that 1 kg coal emits 2.86 kg of CO_2.

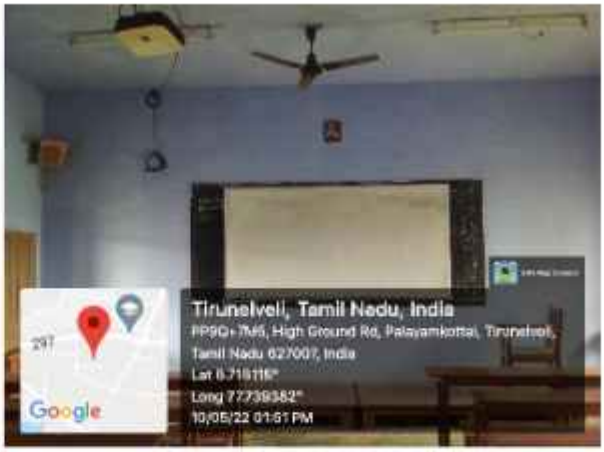
- Hence CO_2 emitted by 10,000 kg of coal (10,000× 2.86) = **28,600 kg**.
- The real carbon reduction value can be assessed if the energy consumption of 338 LED lights is compared with that of 338 fluorescent tube lights.
- One fluorescent tube light (40 W)consumes110 units of electricity per year. Therefore, 338 bulbs consume **37,180 units**.
- But 338 LED bulbs consume only 18,590 units of electricity. Replacement value in favour of carbon emission is (37,180 – 18,590) = **18,590 units** of electricity.
- Coal required for generating 18,590 units of electricity (18,590 × 0.538 kg) = **10,000 kg.**
- Based on the calculation that 1 kg coal emits 2.86 kg CO_2, the total quantity of CO_2 emitted by **10,000** kg coal (**10,000** × 2.86) = 28,600 kg or **28.6 tonnes**.
- **Carbon footprint reduction through installation of 338 LED lamps per year is28,600kg or 28.6 tonnes of CO_2.**

Conclusion

The Energy Audit Summary of **St. Xavier's College (Autonomous), Palayamkottai** demonstrates that the institution possesses a strong infrastructure base that supports quality education, student services, faculty productivity, and administrative effectiveness.

The availability of lighting, cooling, IT, digital teaching aids, and utility support facilities clearly indicates that the campus is equipped to sustain effective teaching-learning practices in line with **NAAC quality benchmarks** and **global sustainability expectations**. The installation of the **83 KW solar power system** further strengthens the institution's commitment to sustainable development, renewable energy adoption, and responsible campus management. With improved energy efficiency measures and optimum use of solar power, the college can significantly enhance its standing in **Green Audit**, **NAAC documentation**, and **global ranking-related sustainability indicators**.


Tirunelveli, Tamil Nadu, India
PP9Q+7M5, High Ground Rd, Palayamkottai, Tirunelveli, Tamil Nadu 627007, India
Lat 8.718115°
Long 77.739382°
10/05/22 01:52 PM
Google


Tirunelveli, Tamil Nadu, India
PP9Q+7M5, High Ground Rd, Palayamkottai, Tirunelveli, Tamil Nadu 627007, India
Lat 8.718115°
Long 77.739382°
10/05/22 01:51 PM
Google


Tirunelveli, Tamil Nadu, India
PP9Q+7M5, High Ground Rd, Palayamkottai, Tirunelveli, Tamil Nadu 627007, India
Lat 8.718115°
Long 77.739382°
11/05/22 09:09 AM
Google


Tirunelveli, Tamil Nadu, India
PP9Q+7M5, High Ground Rd, Palayamkottai, Tirunelveli, Tamil Nadu 627007, India
Lat 8.718115°
Long 77.739382°
11/05/22 09:09 AM
Google


Tirunelveli, Tamil Nadu, India
PP9Q+7M5, High Ground Rd, Palayamkottai, Tirunelveli, Tamil Nadu 627007, India
Lat 8.718115°
Long 77.739382°
11/05/22 04:37 PM
Google


Tirunelveli, Tamil Nadu, India
PP9Q+7M5, High Ground Rd, Palayamkottai, Tirunelveli, Tamil Nadu 627007, India
Lat 8.718115°
Long 77.739382°
11/05/22 04:35 PM
Google

ST XAVIER'S COLLEGE					
PALAYAMKOTTAI - 627002					
Service Number	**Service Name**	**Block**	**SANTIONED KW**	**CONSUMED KW**	**UNUSED KW**
07-003-301-1757	Procurator	Stadium Ground	10 KW	3 KW	7 KW
07-003-301-18	The Burshar	Jubilee Block	117 KW	117 KW	-
07-003-301-19	Principal	Cbb	120 KW	-	120 KW
07-003-301-586	Prokkiu Reattar	Xrf	23 KW	8 KW	15 KW
07-003-301-586	Corresopendent	Antony Samy Block	42 KW	42 KW	-
07-003-301-691	The Procurator	Fathima Ground	2 KW	-	2 KW
07-003-301-861	Secretary	Alumni A/E	44 KW	5 KW	39 KW
07-003-301-1715	Xavier's College	Centenary Building	258 KW	153 KW	105 KW

SXC - ELECTRICAL & ELECTRONIC EQUIPMENT

Items	Main Building	Jubliee Block	Soosai Block	CB Block	CG Block	XIBA	Bank Building	Care Building	Phy.Edu	Library	XRF	Stand, Information Office	Indoor Stadium	Causs anel Hall	Pope Auditorium	Lab aeu Auditorium	Total
Tube Light	332	81	82	200	179	135	37	30	60	69	107	16	9	4		35	1376
Ceiling Fan	194	39	70	123	131	105	20	25	26	44	27	6		11		20	841
LED Light	45	45	32	57	27	24	2	6	18	7	2	2		12	10	4	293
Pedestal Fan	2	2	0	2	1	1	1	0	0	2	2						13
AC	26	25	8	9	2	35	2	0	0	2	7			9			125
Computer	44	138	89	161	6	110	5	1	1	15	12	3		1			586
Printer	13	11	13	1	2	5	1	1	1	0	5	2					55
Xerox Machine	0	4	6	0	0	0	0	0	0	2	0						12
Scanner	0	0	0	0	0	1	0	0	0	2	0						3
Line Printer	0	1	0	0	0	0	0	0	0	0	0						1
Laptop	6	8	4	0	3	2	0	0	0	0	0	1					24
Battery	33	0	16	0	0	1	2	0	0	0	10	2					64

Water Tap	194	6	17	5	7	40	7	5	8	1	11					1	302
Projector	23	9	5	4	2	4	0	0	1	0	1			1		1	51
Smart Board	1	0	0	0	0	0	0	0	0	0	0						1
LED TV	1	0	1	2	1	5	0	0	0	0	0						10
Light Bulb	3	0	0	0	0	0	2	0	0	0	0						5
Fridge	4	0	0	0	0	1	2	1	0	0	4						12
Micro Oven	1	0	0	0	0	0	0	0	0	0	0						1
Color Printer	0	1	0	0	0	0	0	0	0	0	0						1
Wall Fan	0	3	0	0	0	0	0	0	0	6	0			2	20		31
Bio-Metric Machine	0	3	0	0	0	0	0	0	0	0	0						3
Speaker	0	18	0	0	0	15	0	0	0	0	0					10	43
Acqa	0	6	2	0	0	0	0	0	0	1	0						9

7. WASTE MANAGEMENT AUDIT

Management of solid waste is an important driver in Green Audit. Solid waste not properly managed leads to the degradation of the environment which, in turn, affects the flora and fauna. Keeping this in mind, the College has been strictly implementing scientific solid waste management to maintain the green status of the campus.

Pollution from waste is aesthetically unpleasing and results in large amounts of litter in our communities which can cause health problems. Plastic bags and discarded ropes and strings can be very dangerous to birds and other animals. This indicator addresses waste production and disposal, plastic waste, paper waste, food waste, and recycling. Solid waste can be divided into two categories: general waste and hazardous waste. General wastes include what is usually thrown away in homes and schools such as garbage, paper, tins and glass bottles. Hazardous waste is waste that is likely to be a threat to health or the environment like cleaning chemicals and petrol.

Small buckets numbering 109 have been kept in various places of the campus so that students shall deposit the solid waste in the buckets. Apart from that, five tanks have been constructed to collect compostable and non-compostable solid waste throughout the year.

Waste Management

- The college has empowered students with the digital learning tools.
- The campus is 100% plastic free.
- The exam section has adopted the duplex printers, which enables the complete usage of the paper areas
- The internal correspondences and various functionalities are taken care by the electronic means like SMS, WhatsApp, emails and *Enterprise Resource Planning* (ERP) system. ERP is business process management software that allows an organization to use a system of integrated applications to manage the business and automate many back office functions related to technology, services and human resources.

Canteen Waste: Party is appointed to handle the canteen waste and dump it into the designated location allocated by Tirunelveli Municipal Corporation.

Liquid Waste from Canteen College and the Hostels: This waste is handled in the soak pits of the college and the hostel. The solid and the liquid food waste are converted to biogas in the hostel premises. The continual efforts of the College Management were apparent.

Paper Waste Management:

The generated papers can be classified into two types. Day-to-day printouts and long-time papers (example 10 years - Generally Exam papers and similar records). Day-to-day printouts are recycled by using the other un-utilized side of paper popularly called one side papers. After utilization of the one side papers the same are handed to the Store and Library Department for further disposal process. Long time papers are stored in safe custody in the Library premise.

Garden Waste:

This waste is biodegradable waste. The upkeep of garden is entrusted to appointed persons who are responsible for its disposal. Generally, the garden waste is utilized for the compost manure.

E-Waste:

The E-waste generally includes the tube lights, CFL, LED are stored into the scrap yard of college and stored. The audit team noted that the technical lifetime / service life of most of the electronic equipment is yet to be over, thus the presently there is limited generation of waste. However, college needs to device long term and regularized policy of the e-waste disposal.

Recycling of RO Waste Water:

The waste water from RO is recycled for garden use.

Chemical Waste Disposal

1. The experiments have been changed to micro level from semi micro level. Hence the quantity of waste produced and quantity of chemicals and fuels used have been considerably reduced. For volumetric analysis double burette method is adopted to reduce the quantity of titrants. Qualitative analyses of chemical substances are done by using the very minimum quantity of the order of a few micro gram and the reagents are used only drop wise using eye drop bottles.
2. Some of the chemicals prepared in the practical classes are reused in other practical classes. The benzoic acid prepared in organic synthesis practical is used to determine the integral heat of solution in physical chemistry practical, it is also used for qualitative analysis in organic qualitative analysis practical class.
3. Remnant of used chemicals are collected and reused. In volumetric classes students prepare 100ml standard solutions and they will use only 60 ml. The remaining 40 ml from all the students are collected and stored in a bottle and is used as standardized solution in allied chemistry practical classes.
4. Solid wastes like broken glasses are collected separately and stored. A plastic trough is kept on all the work tables in the laboratory. Broken glass pieces and plastic wastes insoluble chemical wastes are put in it and are collected and stored. Students are instructed not to drop any water insoluble and harmful chemicals into the sink.
5. The above said practices considerably reduce pollutions in water, air and soil.


VERMICOMPOST UNIT
WOMEN SELF - HELP GROUPS
Entomology Research Institute


DEGRADABLE
NDG-23
DEGRADABLE WASTE


Virgo
Tirunelveli, Tamil Nadu, India
Google


DEGRADABLE
WASTE
NDG-31

8. WATER AUDIT

Water is a natural resource; all living matters depend on water. While freely available in many natural environments, in human settlements potable (drinkable) water is less readily available. We need to use water wisely to ensure that drinkable water is available for all, now and in the future. A small drip from a leaky tap can waste more than 180 liters of water to a day; that is a lot of water to waste - enough to flush the toilet eight times! Aquifer depletion and water contamination are taking place at unprecedented rates. It is therefore essential that any environmentally responsible institution should examine its water use practices. Water auditing is conducted for the evaluation of facilities of raw water intake and determining the facilities for water treatment and reuse.

In order to save water and leakage the water taps in the college campus have been numbered in order to facilitate a fast repair and stop leakage. Safe drinking water by RO system is provided to students and it is available 24/7.

Water TAP

Fr. S. M. Antonysamy Block	103
Jubilee Block	14
Fr. Susai Block	42
Bank Building	17
Auditorium	11
Loyola Hall & Canteen	19
Library	1
CBB	27
STAND Office	1
Drinking Water	25
CARE	14
Total	**274**

Rain Water Chamber

Fr. S. M. Antonysamy Block	31
Fr. Susai Block	13
Jubilee Block	11
Bank Building	7
Auditorium	13
Indoor Stadium	0
Library	13
CBB	12
CARE	4


Tirunelveli, Tamil Nadu, India
Tirunelveli, Tamil Nadu, India
Google

9. AIR QUALITY AUDIT

Emission of CO_2 through transport system – both public and private – is very high in India as India is credited with the third rank in carbon emission in this regard.

It is estimated that in India, 9% of the total carbon is emitted by the transport system. Taking into consideration that the College is located along the road parallel to Palay Bus Stand and the frequent availability of adequate public transport system, the College Management has taken a principled stand right from the beginning to encourage students to use the public transport system to reduce carbon emissions.

The student community and teaching faculty members of the college are using two wheelers and four wheelers in large numbers and the trend has been on the increase. Hence it is appropriate, in this context, to analyze the carbon dioxide emissions from the fleet of four wheelers and two wheelers owned by the individual seven though the Institution does not pollute the atmosphere directly.

The following data indicate the quantity of diesel consumed by the vehicles during the last year. There are 42 four wheelers and 683 two wheelers used by students and staff. It is appropriate to calculate the petrol consumption separately for four wheelers and two wheelers. The survey conducted among students who own two-wheelers reveals that they use the vehicles not only for visiting the college, but for loitering after college hours and holidays. It is estimated that the average mileage covered by each student is about 30 km. The total mileage covered by the 683 two-wheelers per year (683 × 30 × 365) = 74,78,850 km.

Apart from that 42 four wheelers are used by the faculty members and the average mileage covered is also the same, 30 km per day. Hence the total mileage covered by 42 four wheelers per year is (42 × 30 × 365) = 4,59,900 km. The total mileage covered by two and four wheelers per year (74,78,850 + 4,59,900) =79,38,750 km.

The fuel consumption by vehicles is determined by the type of vehicle, year of manufacturing, maintenance status, traffic system of the particular area, etc. High-end and medium-range bikes consume different quantities of petrol. However, for

convenience sake, 35 km per litre was taken as the standard to calculate the carbon emission of two wheelers. Based on this, the total quantity of petrol consumed forcovering 74,78,850km is (74,78,850/35) = 2,13,681.42 litres.

A medium-range four wheeler covers 16 km per litre of diesel. Based on this the total quantity of diesel consumed by 42 four wheelers per year (4,59,900/16) =28,743.75 litres. Thus the total fuel consumption per year (2,13,681.42+ 28,743.75) = 2,42,425.17litres (both petrol and diesel).

Conversion table to calculate carbon emission by vehicles per litre is very complicated in view of the local variables to be taken for calculation.

Instead, a simple but universally accepted calculation calendar for various types of fuels and their CO_2 conversion rate was adopted. As per this calculation calendar, combustion of 1 litre of diesel/petrol leads to the emission of 2.68 kg of CO_2. At this rate, the total quantity of CO_2 emitted by2,42,425.17litres of fuel (2,42,425.17 × 2.68) = 6,01,409.95 kg.

Converted into tonnes, the carbon emission into the atmosphere is 601 tonnes. Considering this emission of CO_2, the institution has intensified green awareness among the students through green education on the one hand and plans to mitigate carbon emission from vehicles on the other.

St. Xaviers College (Autonomous), Palayamkottai			
I/II	**Teaching / Non-Teaching Staff**	**Four-Wheeler**	**Two-Wheeler**
S - I	Teaching Staff	23	36
	Non-Teaching Staff	6	30
S - II	Teaching Staff	13	63
	Non-Teaching Staff		26
	Boys		515
	Girls		225
	Total	**42**	**895**


Tirunelveli, Tamil Nadu, India


ST XAVIER'S COLLEGE


Tirunelveli, Tamil Nadu, India


Tirunelveli, Tamil Nadu, India

10. ENVIRONMENT AUDIT

Environment has become a popular subject in the twenty-first century. Some of the problems faced by humankind directly or indirectly are due to ozone depletion, greenhouse effect, acid rain, global warming, air-water pollution and fossil fuel combustion. Chemicals and allied processes are the most important among these.

Noticing the bad effects of chemicals and traditional energy sources on environment and human life, the Institution has been trying to find solutions for a better life. For this, creating awareness about environmental issues and the conservation of the ecosystem have become increasingly important in the life skill education in the College.

The college imparts Environment Studies as compulsory life-skill classes twice a week for all second year UG students. This indeed creates wide-level environment consciousness among the student community.

Green Practices of the Campus

- Students, staff using Bicycles
- Many Students use Public Transport
- Pedestrian Friendly Roads in and around the campus
- 100% Plastic free campus
- Paperless office
- Green landscaping with trees and plants

Objectives of Environmental Education

1. An **AWARENESS** of the environment and its problems.
2. Basic **KNOWLEDGE** and understanding of the environment and its inter-relationship with man.
3. Social **VALUES** and **ATTITUDES** which are in harmony with environmental quality.
4. **SKILLS** to solve environmental problems.

5. Sense of responsibility and urgency towards environment so as to ensure appropriate **ACTIONS** to solve environmental problems.

GUIDELINES FOR WORKING WITH THE EARTH (important)

1. Leave the earth as we have found it
2. Take no more than we need
3. Try not to harm life, air, water or soil
4. Sustain habitats and biodiversity
5. Help maintain the earth's capacity for self-repair & adaptation
6. Do not waste resources
7. Do not release pollutants into the environment
8. Emphasize pollution prevention & waste reduction

11. FIRE SAFETY AUDIT

Introduction

Fire safety audits for all types of buildings and industries, including hotels, hospitals, homes, schools, manufacturing plants, chemical plants, power plants, FMCG companies, foundries, mines, etc. are conducted to check the fire hazardous materials and ensure the place which is free from fire incidents. The occurrence of fire has the potential to cause serious damage to life and property. A fire safety audit is the most effective tool to assess the fire safety standards of your facility. It helps owners identify areas for improvement and develop action plans, in addition to preparing for emergencies and conducting test drills. There are some fire safety audits checklists to conduct fire safety audits based on various IS standards such as Standard for Automatic Fire Detection and Alarm System, Installation and Maintenance of Emergency and Fire Extinguishers for fire safety of buildings and all other relevant safety standards to identify all the hazards that need to be corrected and prevented.

Prior to the fire safety audit, it has been collaborated with auditing team to gather essential documentations and records including building plans, fire safety equipment details and evacuation procedures. The expert audit team comprising professionals from diverse departments is formed to ensure a thorough assessment. Clear objectives has been set and timelines are established to streamline the audit process. Fire safety audit defines the areas, departments and processes within the facilities of the organization that will be evaluated. The objectives are tailored to the fire safety standards and regulations of both Central and State Governments, which include identifying potential fire hazards, evaluating preventive measures and verifying staff training. This focused approach ensures a systematic and efficient fire safety audit process.

Fire Safety Observations

The fire safety audit checklist, in line with the National Building Code, Part II: Approach to Sustainability, covered 11 checkpoints. During the onsite visit, auditors

assessed each checkpoint for applicability and verified compliance through records, documentation, and physical observation. The evaluation was based on two parameters: meeting the requirements and scope for further improvement. Compliance indicates that the existing practices, documentation, and safety measures are in accordance with the prescribed standards. The institution has established fire safety systems, including the provision of fire extinguishers and basic safety infrastructure. Further strengthening can be achieved through periodic refilling, systematic identification numbering, and maintenance of detailed service records to ensure effective traceability and readiness of fire safety equipment. Periodic review and timely replacement of medicines and surgical items in the first aid box may be ensured to maintain readiness for emergency medical support. Additionally, fire extinguishers installed in laboratory areas may be inspected and replaced/refilled periodically to ensure operational effectiveness and safety compliance.

TAMIL NADU FIRE AND RESCUE SERVICES

(Under section 13 of the Tamil Nadu Fire Service Act 1985 and

Tamil Nadu Fire Service Rule 1990 - Appendix-III)

Licence No: 2682/RFL/NMSB/2025

Dated: 06/06/2025

District Office,

Fire and Rescue Service,

Tirunelveli District.

RENEWAL OF FIRE LICENSE

Ref: Token ID: 294618 from the St.Xavier"s College, Door No.21, Soosai Block, Jubilee Block, FR. S.M. Anthony Samy Block, Centenary Building, North High Ground Road, Palayamkottai, Tirunelveli Dated: 29/05/2025

****

The Fire License is hereby issued under section 13 of the Tamil Nadu Fire and Rescue Service Act 1985 for Educational Building in the Name of St.Xavier"s College, T.S.No.1670/1, 1670/2, 1671/1, 1671/2, 278/2, 278/3, 278/4, T.S.Ward.No.3, Block No.21, Door NO.21, Soosai Block(G+2), Jubilee Block(G+2), FR.S.M.Anthony Samy Block(G+2), Centenary Building(G+2), North High Ground Road, Palayamkottai, Tirunelveli District. Consisting of Ground Floor + Two Floors (G+2) within the jurisdiction of Palayamkottai based on the inspection was done by the Assistant District Officer, Palayamkottai Fire and Rescue Station on 03/06/2025. Subject to the condition noted thereon and such other conditions as may be prescribed. This License is valid for THREE YEARS from the date of issue.

CONDITIONS

1. All firefighting equipment should always be kept in good working condition at all times and it should be as per the NBC2016 part -IV maintained well and working in good condition. The trained personnel should always be available to operate the systems in case of any emergency.
2. Fire extinguishers should be installed and maintained as per IS 2190:2010
3. All Staff should be trained in preliminary firefighting as per G.O.No:713 Home (Police-17), Dated: 17.08.2005 with Fire and Rescue Services Department.
4. Mock drill should be periodically conducted.
5. Any addition and/or alteration of a permanent or temporary structure should be intimated to the Fire and Rescue Services Department.
6. Fire order / contingency plan / evacuation plan should be prepared and displayed in each floor at prominent places and Do's & Don'ts boards should be displayed.
7. Emergency fire exit, staircases and doors should not be obstructed.
8. Good housekeeping should be maintained and dumping of waste materials anywhere [illegible].
9. All the electrical equipment, fitting, accessories and Wiring system should be maintained [illegible]-46 : 1997 Code of Practice for Fire Safety of Building (General) Electrical Installation should be followed.

Signature valid

Signed by: District Officer
Tirunelveli
Southern Range, District Officer
Reason: [illegible]-46 : 1997 Code of
Date:07-Jun-2025 10:46:55

District Officer

12. HYGIENE AUDIT

Introduction

A hygiene audit will provide an insight into how an organization operates in a sustainable manner in terms of hygiene environment to the stakeholders as per the International Standard for Occupational Health and Safety Management Systems (ISO HSMS). If an organization has a hygiene auditing process implemented already, then it should apply environmental context into a clean environment. Environmental audit is a natural management tool and it will become more effective when hygiene audit is added to it. It is an essential requirement to adopt an audit process for a sustained utilization of resources in a hygienic way in both developed and developing countries like India. Hygiene will be of different types such as personal hygiene, environmental hygiene, medical hygiene and public hygiene which are all interrelated between each other in terms of maintaining a hygienic atmosphere to the stakeholders.

To ensure that the hygienic environmental management system, maintenance of environmental and personal hygiene, availability of clean resources, maintenance of water supply and hygiene, cleanliness ensured at the site of disposal of human waste materials and personal safety in the campus should be implemented effectively. Each year a plan for the hygiene audit should be prepared by the management of an organization. A committee of faculties and student representatives and social aware members appointed to take this plan forward in the beginning of every year will ensure that the entire hygienic environmental management system is implemented in the organization without any hindrance. An effective hygiene practice should be followed among the stakeholders which in turn useful to control a wide variety of disease outbreaks. Every organization should have applicable regulations, policies and standards with respect to hygienic environment.

Hygiene audit observations

- No person is suffering from a disease or illness or with open wounds or burns among the students, teaching and non-teaching staff members including supportive staff and management people across the campuses observed during the hygiene audit which indicated the campus is very keen interest in providing good hygiene atmosphere to the stakeholders.
- The sanitizing materials such as soap, liquid detergent, tissue paper role, hand gloves, hand towels, etc. are made available nearby the washbasins and restrooms focusing towards the personal hygiene and sanitation related concerns to the stakeholders.
- Appropriate dustbins and eco-friendly covers are made available at laboratories, canteens, food courts, cafeteria and hostels across the campuses to control the spread of wastes and contaminants from one place to another place and without harming the environmental health.

Form C
Government of Tamil Nadu
Department
(Food Safety Wing)
Food Safety and Standards Authority of India
License under FSS Act, 2006

License Number: **12422026000113**

1.	Name & Registered Office address of Licensee:	Sulthaniya Hotel And Catering Sulthaniya Hotel And Catering, MFG : Plot No : 1, PNS Nagar, Perumalpuram, Tirunelveli-7 RT : Shop No : 76, New Bus Stand , Tirunelveli , Tamil Nadu-627005
2.	Address of Authorized Premises:	Sulthaniya Hotel And Catering, MFG : Plot No : 1, PNS Nagar, Perumalpuram, Tirunelveli-7 RT : Shop No : 76, New Bus Stand , Thirunelveli Corporation Ward-28, Tirunelveli , Tamil Nadu-627005
3.	Kind of Business:	Food Services - Restaurants
4.	Dairy Business Details:	No
5.	Category of License:	**State License**

This license is granted under and is subject to the provisions of FSS Act, 2006 all of which must be complied with by the licensee.

Place: Tirunelveli

Issued On: 08-01-2026 (Renewal License)

Valid Upto: 29-01-2027 (For details, refer Annexure)

Designated Officer

Annexures:

1. Product Annexure
2. Validity Annexure
3. Non-Form C Annexure
4. Conditions Of License

To download 'Food Safety Connect' App, Scan the below QR

Android

iOS

Note:

1. **Application for renewal of License can be filed as early as 180 days prior to expiry date of License. You can file application for renewal or modification of License by login into FSSAI's Food Safety Compliance System(https://foscos.fssai.gov.in) with your user id and password or call us at 1800112100 for any clarification.**
2. **This License is only to commence or carry on food businesses and not for any other purpose.**
3. **This is computer generated license and doesn't require any signature or stamp by authority.**

Form C
Government of Tamil Nadu
Department
(Food Safety Wing)
Food Safety and Standards Authority of India
License under FSS Act, 2006

License Number: **12425026000033**

1.	Name & Registered Office address of Licensee:	St. Xavier's Hostel Kitchen St, Xavier's College Campus, North High Ground Road, Palayamkottai, Tirunelveli , Tamil Nadu-627002
2.	Address of Authorized Premises:	St, Xavier's College Campus, North High Ground Road, Palayamkottai, Tirunelveli Corporation Ward-24, Tirunelveli , Tamil Nadu-627002
3.	Kind of Business:	Food Services - Food Vending Establishment
4.	Dairy Business Details:	No
5.	Category of License:	**State License**

This license is granted under and is subject to the provisions of FSS Act, 2006 all of which must be complied with by the licensee.

Place: Tirunelveli
Issued On: 09-01-2025 (New License)
Valid Upto: 08-01-2030 (For details, refer Annexure)

Designated Officer

Date : 09-01-2025 17:43:01
User Id : 105676
Verified th[illegible]obile : 88XXXXX962
License Grant On : 09-01-2025 15:36:24
License Issued On : 09-01-2025 17:43:01

Annexures:
1. Product Annexure
2. Validity Annexure
3. Non-Form C Annexure
4. Conditions Of License

Note:

1. **Application for renewal of License can be filed as early as 180 days prior to expiry date of License. You can file application for renewal or modification of License by login into FSSAI's Food Safety Compliance System(https://foscos.fssai.gov.in) with your user id and password or call us at 1800112100 for any clarification.**
2. **This License is only to commence or carry on food businesses and not for any other purpose.**
3. **This is computer generated license and doesn't require any signature or stamp by authority.**
4. **Communications from FoSCoS are being sent to le[illegible].com , tn[illegible].com , le[illegible].com and 87[illegible]049 , 89[illegible]900 , 89[illegible]900.To update these details, visit FoSCoS portal.**

13. SOIL AUDIT

Introduction

Soil is the inequitable natural resources and naturally occurring loose covering on the earth's surface. Weathering altered the rock particles of soil into mixtures of mineral and organic constituents. Soil is rich in microorganisms such as bacteria, fungi, actinomycetes, algae, protozoa and nematodes. The microorganism of the soil helps in enzymatic degradation of organic matter, energy storage and conversion of nutrients in available form in their biomass. In general, soil is the natural ecosystem of the organization that has to be structured, planned and developed from the point of entry to end users the stakeholders in such a way with contamination free soil without any chemical residues, sustainable use of land and suitable measures for their conservation.

Soil audit plays an important role to provide crucial data for sustainable agriculture, environmental management, and other fields by assessing soil health, nutrient levels, and contaminants. Environmentally, audits can identify contamination risks, track long-term soil health, and inform waste disposal practices. For construction and engineering, soil audits assess compaction and stability. Soil audit helps the educational institutions and industries to maintain eco-friendly environment, assures personal hygiene to various stakeholders and supports the nation; on the whole for the noble cause of environmental protection and nature conservation which in turn enhances the quality of life of all living beings. Most of the soil in India are well drained, deep, fairly loamy, slightly acidic to alkaline and lime-free soils and they are ideal for variety of plant cultivation. The Indian soils are mainly containing large amount of mica with good behaviour of water holding capacity with abundance of micro and macro elements. Some of the soils are characterized by clay loam type, classified as latosols with good organic matter contents along with sufficient amount of nitrogen, potassium and phosphorous contents all tea soils are distinctly acidic, rich in nitrogen content.

Soil audit observations

1. The physic-chemical properties of soils revealed that the soil health is good towards the construction of building and the cultivation of various native and wild type plant species in large scale level.
2. By analyzing various nutrient levels, pH, texture and water holding capacity, it is suggested to select the right native plants species for cultivation in the organization with appropriate fertilizer applications in soil ecosystem.
3. Regular audits help monitor soil health over time, allowing for long-term management strategies that maintain productivity and prevent degradation.
4. It identifies issues like nutrient deficiencies, toxicities, or pH imbalances, enabling corrective actions before they impact plant species health.
5. By avoiding over-fertilization, soil audits reduce nutrient runoff into water bodies, which can cause eutrophication and other pollution.
6. Audits are used to detect contaminants such as heavy metals or organic pollutants, which is essential for environmental clean-up and risk assessment.

தமிழ்நாடு அரசு
வேளாண்மை - உழவர் நலத்துறை

மண் பரிசோதனை நிலையம்
திருநெல்வேலி

மண் வள அட்டை

ஆய்வக எண் : E-241	விவசாயியின் பெயர் : M.Barkmans	பாசன விவரம் :
முகவரி : Ilanthaikulam Palayamkottai.	சாகுபடி பயிர் :	
சர்வே எண் : 5.3.1	பயிர் கழுத்தி :	வேளாண்தட்ப வெப்ப மண்டலம் : SOUTHERN ZONE

மண்ணின் தன்மை

மண் மாதிரி வரப்பெற்ற தேதி	மண் நயம் (Texture)	சுண்ணாம்பு நிலை (Calcium Carbonate)	உப்பின் நிலை EC(dSm^{-1})			களர் - அமில நிலை (pH)	அங்கக கரிமம் (O.C%)			ஆய்வு முடிவு அனுப்பிய தேதி	பாஸ்தாஸ் உரம் (GM) / தொழு உரம் (FYM)
		இல்லை/மத்திமம்/அதிகம்	நல்ல நிலை	மத்திமம்	அதிகம்		குறைவு	மத்திமம்	அதிகம்		
07.08.25	மணல் கலந்த களி குறு மண் - SCL	✔	0.38			8.4 - மிதமான களர்		0.75		11.08.25	

மண் ஆய்வு முடிவுகள்

பேரூட்டச்சத்துக்கள் (கிலோ/ஏக்கர்)		குறைவு	மத்திமம்	அதிகம்
தழைச்சத்து	N	84		
மணிச்சத்து	P			11
சாம்பல்சத்து	K			273

இரண்டாம் நிலைச்சத்து (கிலோ/ஏக்கர்)				
கந்தகம்	S	4		

நுண்ணூட்டச்சத்துக்கள் (பி.பி.எம்)		குறைவு	போதுமானது	அதிகம்
இரும்பு	Fe	2.31		
மாங்கனீசு	Mn		6.25	
துத்தநாகம்	Zn	0.52		
தாமிரம்	Cu		1.23	
போரான்	B	0.08		

உரப்பரிந்துரைகள்
பேரூட்டச்சத்துக்கள் ( )

தழை (N)		அம்மோனியம் சல்பேட்	
மணி (P_2O_5)		டி ஏ பி	
சாம்பல் (K_2O)		மியூரியேட் ஆப் பொட்டாஷ்	

நுண்ணூட்டச்சத்துக்கள் ( )

இரும்பு சல்பேட்	மாங்கனீசு சல்பேட்	துத்தநாக சல்பேட்	தாமிர சல்பேட்	போராக்ஸ்	சோடியம் மாலிப்டேட்
				NA	NA

நுண்ணுயிர் உரம்

	விதைநேர்த்தி	நாற்றங்காலில்	நடவு வயலில்
அசோஸ்பைரில்லம்			
பாஸ்போபாக்டீரியா			

நிலச்சீர்திருத்தம்

சுண்ணாம்பு நிலம் (CC)

- அதிக அளவில் பசுந்தாள் / தொழு உரமிடவும்.
- பாசன நீர் தேங்குவதை தவிர்க்கவும்.

குறிப்பு: நிலத்தின் உரிமையாளர், சர்வே எண் மாதிரிகள் எடுத்த முறை போன்றவற்றின் உண்மைத்தன்மைக்கு இவ்வலுவலகம் பொறுப்பேற்காது. தங்களால் சேகரித்து கொடுக்கப்பட்ட மாதிரிகளை ஆய்வு செய்து இந்த ஆய்வு முடிவு கொடுக்கப்படுகிறது.

மழை நீரை சேகரிப்போம்! மண்வளம் காப்போம்!! மகசூலை பெருக்குவோம்!!!

மூத்த வேளாண்மை அலுவலர்,
மண் பரிசோதனை நிலையம்
திருநெல்வேலி

13. RECOMMENDATION AND SUGGESTIONS

1. Gardens inside the college premises are found well maintained.
2. The environmental awareness initiatives are substantial.
3. Recycling of waste water for the college campus – refer Loyola College waste water treatment model
4. Need for improvement in rainwater storage facilities
5. Hundred percent ban of plastics in the campus (Thermocole/Plastic plates, Cups, Water bottles, etc.,)
6. Numbering the taps for effective water leakage management
7. Eco-friendly green buildings
8. Installation of Compost Tumbler (Fast, Cheap and Easy) as an alternative to dustbins.
9. Planting of trees – Fruit trees, Drought tolerant, Rain Cloud attracting, Carbon Sequestration , Timber yielding
10. There is only very few fruit trees in the college to attract birds.
11. Exotic grassland can be replaced by growing native grasses which yield revenue
12. Management of canteen waste
13. Alternative sources of energy – hybrid devices like wind and solar
14. Replace disposable batteries to rechargeable batteries in Audio and Video devices
15. Installation of automatic on/off sensor switches for every classroom
16. Management of waste papers in the offices (College and Controller)
17. Compostable solid waste shall be collected and deposited in solid waste collection tanks. These wastes shall be profitably converted into compost and applied to gardens and trees to reduce the application of chemical-based fertilizers and pesticides.
18. More solar panels shall be installed on top of the buildings to enhance solar power productivity.

19. Rain water harvesting systems, solar power generation, environmental education programs have to be strengthened.

Recommendation to the Secretary's Office

1. Ban the use of ballpoint pens in the semester exams.
2. Strictly follow university rules for the answer scripts (22 – 24 lines/page with 5 words/line)
3. Paperless office
4. Replace notice boards with electronic digital boards
5. Ban the use of flex printed banners for any events
6. Encourage the distribution of eco-friendly files and bags in the conferences

Common Recommendations

1. Adopt an environmental policy for the college
2. Conduct more seminars and group discussions on environmental education.
3. Students and staff can be permitted to solve local environmental problems.
4. Establish water, waste and energy management systems.

Action Plan

The college should have a green policy/environmental policy for its sustainable development. The environmental policy formulated by the management of the college should be implemented meticulously.

Students and Staff members may be made totally aware of pollution caused by use of vehicles. The carbon consumption awareness programs on carbon emission at individual as well as social level will help to avoid air and noise pollution in the campus due to vehicles.

Conclusion

The green audit reports assist in the process of attaining an ecofriendly approach to the sustainable development of the college. Hope that the results presented in the green auditing 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.

IQAC Director

Secretary **Principal**

ANNEXURE - I

SOLAR

AQUA

WATER PURIFIER

DRINKING WATER PIPELINE

BIOGAS PLANT

RAIN WATER HARVESTING






ANNEXURE – II

ST. XAVIER'S COLLEGE
AUDITORIUM

ST. XAVIER'S COLLEGE
COMPOUND WALL & SECURITY

ST. XAVIER'S COLLEGE
FIRE EXTINGUISHER

ST. XAVIER'S COLLEGE
GENERATOR FACILITY




SOLAR SYSTEM


ST. XAVIER'S COLLEGE

WI-FI

UPS

R.O. SYSTEM

Internal Quality Assurance Cell (IQAC)

St. Xavier's College (Autonomous), Palayamkottai - 627002

Internal Green Audit / Energy Audit / Environmental Audit 2025-2026

30.03.2026

SINCE 1923