Draft Report

GREEN AUDIT

AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, Permanently Affiliated to JNT University Kakinada,
ACCREDITED BY NAAC and Recognized under 2(f) &12 (b) by UGC, New Delhi)
Tamaram, Makavarapalem, Narsipatnam (RD), Visakhapatnam-531113

May 2023

Submitted By

Sri. P.Sai Harsha , Asst. Prof (Dept. of Environmental Studies)

Smt. S. Krishna Veni Asst. Prof (Dept. of Engineering Chemistry)

Smt. G.Sravani, Asst. Prof (Dept. of Engineering Chemistry)

CONTENTS

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Lr: AIETM/Committees/Green Audit/2023-24/1 **Date: 27/04/2023**

APPIONMENT OF GREEN AUDIT COMMITTEE -ORDERS

The Principal is pleased to appoint the following faculty as members of Green Audit Committee for the year 2023-24. They are directed to take up the assignment and carry out Green Audit and submit the recommendations for saving resources, improving compliance and maximising eco friendliness in our campus as per the standard guidelines.

GREEN AUDIT COMMITTEE

S.NO	Name of the Committee Member	Designation	Position	Signature
1.	Sri. P. Sai Harsha	Asst. Prof, Dept. of Environment Studies	Chairman	P. Harsha
2.	Smt. S. Krishna Veni	Asst. Professor Dept. of Engineering Chemistry	Member	
3.	Smt. G. Sravani	Asst. Professor Dept. of Engineering Chemistry	Member	

Principal

Principal
Avanthi Institute of Engg. & Techno
Tamaram, Makavarapalem Md.,
Anakapalli District., Pin: 531 113

Copy to:

1. All the Members
2. Coordinator, IQAC
3. Administrative Officer

Executive Summary

This section presents a brief summary of the results of the detailed green audit carried out at AIET, Visakhapatnam during May 2023.

The audit was mainly targeted at identifying practical, sustainable and economically viable Resource saving opportunities in all sections of the facility, resulting from a detailed study and analyses of technical parameters. The audit involved using a wide range of sophisticated, portable, diagnostic and measuring instruments to generate refined data and facilitate complex analyses to give a more reliable basis for evaluation of energy saving potential and economic viability.

AIET has its building located at Tamaram, Makavarapalem, Visakhapatnam. The building occupies an area of 17087 Sq.m. The major resources used are energy and water. In addition the ecosystem of the campus including the biodiversity and sustainability have been assessed.

The study has identified opportunities for saving resources, improving compliance and maximising eco friendliness of the campus.

A summary list of recommendations is given at the end of the report.

CHAPTER 1

INTRODUCTION

1.1 ABOUT COLLEGE

Avanthi Educational Society under the Leadership of Sri M.Srinivasa Rao garu as chairman was started in the Year 1991. Within a short span of its establishment, the group has made a remarkable stride in the field of education offering various courses at Under Graduate, Post Graduate, Pharmacy & Engineering levels. This milestone is achieved as the institution carved itself to impart quality and career oriented education, countering the challenges of the modern world through planning, dedication, determination, prompt execution and with the innovative ideas of our advisory board.

Today, Avanthi Educational Society is proud to have a strength of over 28000 students with 15 institutions under its ambit. It is the path of glory towards the success during the last 33 years. The institution has been adjudged many times as the second best educational institutions in the twin cities and 16th best in all over India through the impartial survey made by the renowned magazine "India Today".

Avanthi Institute of Engineering and Engineering (AIET), Makavarapalem, Visakhapatnam was started in the year 1999 and offers various courses at Engineering and PG level. The college is provide with rooms, computer center, laboratories and seminar hall with audio-visual equipments. Industry Institute interaction is conducted regularly to emphasize on the latest trends in the present market.
It is very near to Narsipatnam. Frequent bus facilities is avaiable both from and to Visakhapatnam and Narsipatnam. Very safe and secure hostel facility is available for Girl students. These are the additional facilities besides excellent academic atmosphere in the college campus.
Courses Offered

1. B.Tech ((Electronics & Communication Engg.)
2. B.Tech (Electrical and Communication Engineering)
3. B.Tech (Computer Science and Engineering)
4. B.Tech (Mechanical Engineering)
5. B.Tech (Computer Science and Engineering- AI&ML)
6. M.Tech (CSE)
7. M.TECH (VLSI Design)
8. M.TECH (Power Electronics)
9. M.TECH (Power Systems)
10. M.TECH (Digital Electronics And Communication Systems)
11. Master in Business Administration
12. Master of Computer of Applications

1.2 SCOPE OF THE STUDY

The green audit was conducted with the following scope of work to cover the impact of resources used in various areas of the campus.

- 'Awareness Programme on 'green audit '
- Assess the inputs, outputs and wastage for each usage area
- Assess the green cover.
- Carbon Foot-print Sequestration
- Flora and fauna
- Institution measures to promote Environmental Awareness
- Asses the Hygiene practices and Green Initiatives
- Identify measures for improving the Green-campus environment

1.3 AUDIT APPROACH

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of various establishments. It aims to analyse environmental practices within and outside of the concerned sites, which will have an impact on the eco-friendly ambience.

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. If self-enquiry is a natural and necessary outgrowth of a quality education, it could also be stated that institutional self-enquiry is a natural and necessary outgrowth of a quality educational institution. 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 prevalent.

Goals of Green Audit

- The objective of carrying out Green Audit is securing the environment and cut down the threats posed to human health.
- To make sure that rules and regulations are taken care of
- To avoid the interruptions in environment that are more difficult to handle and their correction requires high cost.
- To suggest the best protocols for adding to sustainable development

Benefits of Green Audit

- It would help to prepare plan to protect the environment.
- Recognize the cost saving methods through waste minimization and management.
- Point out the prevailing and forthcoming impacts on environment.
- Ensures conformity with the applicable laws.
- Empower the organizations to frame a better environmental performance.
- It portrays a good image of an institute which helps building better relationships with the group of interested parties.

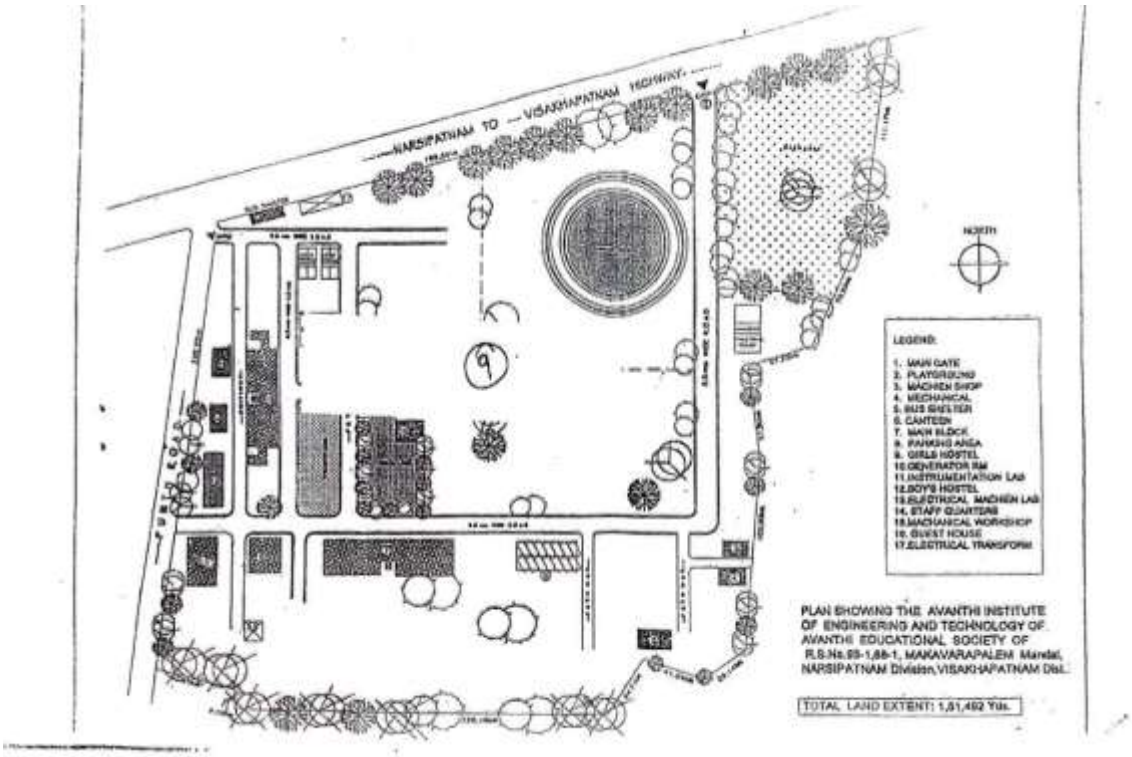
The audit was carried out by undertaking a field visit to the site during May 2023. During the field visit, a number of on-site measurements were taken and observations made for various equipment in the campus along with collection of resource consumption, equipment and operational data from the administration and technical departments. Discussions were held with concerned Technical / Managerial staff so as to fully understand the working requirements to arrive at practically reliable solutions. The audit team collected relevant data and made key measurements.
The following areas were covered as part of the study:

- Bio diversity and ecology
- Carbon footprint
- Health and hygiene
- Flora and fauna
- Environmental Awareness Promoted by the Institution
- Green Initiatives
- Assessment of compliance requirements

After carrying out the measurement & field study, the preliminary observations of the study were discussed with the management. The report presents the field measurements, operational data, data analysis, key observations made, and recommendations for achieving optimum use of resources and for mitigating adverse impact on environment. The recommendations are followed by cost-benefit analysis. Major emphasis is laid on short and medium term measures. The ultimate aim of this exercise is to enable the management to understand and prioritize environmental improvement measures identified through the study.

1.4 CAMPUS DESCRIPTION

Avanthi Institute of Engineering and Engineering (AIET), Makavarapalem, Visakhapatnam and is an affiliated college of JNTUK Kakinada. The Campus consists of Administrative Block, Academic Block, Laboratories, Hostel Blocks, Canteens and Teaching and Non-Teaching Quarters. There are 1507 students, 97 faculty and 70 staff members in the campus.


NARSIPATNAM TO — VISAKHAPATNAM HIGHWAY
NORTH
LEGEND:
1. MAIN GATE
2. PLAYGROUND
3. MACHIEN SHOP
4. MECHANICAL
5. BUS SHELTER
6. CANTEEN
7. MAIN BLOCK
8. PARKING AREA
9. GIRLS HOSTEL
10.GENERATOR RM
11.INSTRUMENTATION LAB
12.BOYS HOSTEL
13.ELECTRICAL MACHIEN LAB
14. STAFF QUARTERS
15.MACHANICAL WORKSHOP
16. GUEST HOUSE
17.ELECTRICAL TRANSFORM
PLAN SHOWING THE AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY OF AVANTHI EDUCATIONAL SOCIETY OF R.S.Nos.89-1,88-1, MAKAVARAPALEM Mandal, NARSIPATNAM Division,VISAKHAPATNAM Dist.
TOTAL LAND EXTENT: 1,01,462 Yds.

CHAPTER 2

CAMPUS ENVIRONMENT SYSTEM

2.1 BIO DIVERSITY

Biodiversity is the amount of variety of life on Earth. It is the number of different species of plants, animals, and microorganisms. It includes organisms from Earth's vastly different ecosystems, including deserts, rainforests, coral reefs, grasslands, tundra, and polar ice caps. Biodiversity contributes to ecosystem as follows:

- Increase ecosystem productivity; each species in an ecosystem has a specific niche—a role to play.
- Support a larger number of plant species and, therefore, a greater variety of crops.
- Protect freshwater resources.
- Promote soils formation and protection.
- Provide for nutrient storage and recycling.
- Aid in breaking down pollutants.
- Contribute to climate stability.
- Speed recovery from natural disasters.
- Provide more food resources.
- Provide more medicinal resources and pharmaceutical drugs.
- Offer environments for recreation and tourism.

2.2 IMPORTANT PLANT SPECIES IN THE CAMPUS

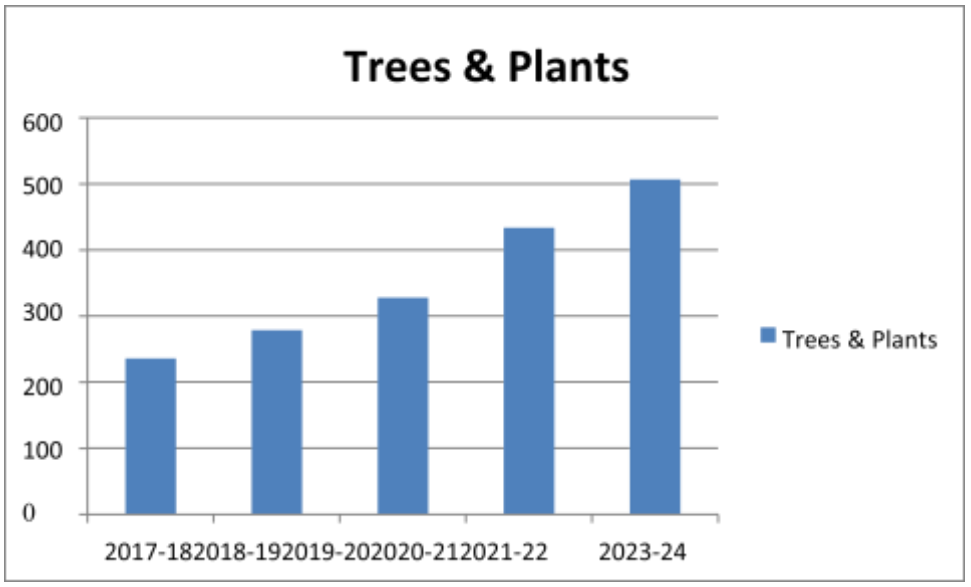
Trees play a critical role for people and the planet. Numerous studies have demonstrated that the presence of trees and urban nature can improve people's mental and physical health, children's attention and test scores, the property values in a neighborhood, and beyond. Trees cool our urban centers. Trees are essential for healthy communities and people. The benefits that trees provide can help cities and countries meet 15 of the 18 internationally supported United Nations Sustainable Development Goals.

The AIET campus has a fairly good species diversity. Species diversity is a measurement of an ecosystems species richness and species evenness. Species richness refers to number of different species in an eco-system. Species evenness is the variation in the abundance of individuals per species within the community.

DESCRIPTION- FLORA	QTY
Teak Trees	36
Guave Trees	16
Coconut Trees	45
Ashoka tree	13
Mull Tree (Punga)	5
Neem Trees	15
The portia tree	5
Gooseberry tree	3

Papaya tree	15
Jungle Trees	50
Java plum tree	15
Bushes	20
Bushes on pot	30
Decorative bushes	250
Total	507

By increasing the species diversity in its ecosystem, AIET has increased both the efficiency and productivity, thus making more resources available for other species within the ecosystem. Over the past five years the rate of increase in flora has seen a significant increase as shown in the graph below.



2.3 NAMING OF PLANT SPECIES

Binomial Nomenclature is a widely used, formal system of naming a species. The nomenclature consists of two names, both of which are derived from Latin. However, it can be derived from other languages too. Such a name is called a binomial name or a scientific name.

The generic name or the initial part of the name highlights the genus to which an organism belongs to. The second part, or the specific name, identifies the exact species to which the organism falls under, within the genus. The botanical names of various plant species in AIET campus are given in the following table.

S.No	Common Name	Botanical Name	Total Number of trees available
Trees			
1	Banana	Musa sp.,	25
2	Jack	Artocarpus heterophyllus	4
3	Mango	Mangifera indica	32
4	Moringa	Moringa oleifera	1
5	Papaya	Carica papaya	15
6	Custard Apple	Annona reticulata	1
7	Guava	Psidium guajava	16
8	Golmohar tree	Delonix regia	1
9	Coconut	Cocos nucifera	40
10	Ashoka tree	Saraca asoca	13
11	kapok silk cotton tree	Ceiba pentandra	1
12	Tree lettuce	Pisonia alba	8
13	Golden shower	Cassia fistula	30
14	Pungam	Millettia pinnata	6
15	Poo arasan	Thespesia Populnea	5
16	Subabul	Leucaena leucocephala	3
17	Teak	Tectona grandis	30
18	Pupal tree	Ficus religiosa	1
Shrubs			
19	Curry leaf	Murraya koenigii	5
Ornamental Plants			
20	Golden Duranta	Duranta eracta	500
21	Clerodendran	Clerodendran Inurme Varigated	100
22	Clerodendran	Clerodendran Inurme	300
23	Crotons	Codiaeum variegatum	30
24	Idlly poo	Ixora coccinea	50
25	Pedulanthus	Euphorbia tithymaloides	300
26	Thuja plant	Thuja occidentalis	10
27	Thulasi	Ocimum sp.,	10
28	Chembaruthi	Hibiscus rosa-sinensis	1
29	Mini Nanthiyavettai	Tabernaemontana Divaricata	20
30	Jasmine	Jasmine sp.,	10
31	Green Acalypha	Acalypha sp.,	50
32	Red Acalypha	Acalypha sp.,	60
33	Difenbachiya	Difenbachiya sp.,	5
Palm trees			
34	Fan palm	Saribus rotundifolius	12
35	Areca palm	Dypsis lutescens	15

2.4 LISTING OF AMPHIBIANS, REPTILES, MAMMALS ETC..

Amphibians play a pivotal role in ecosystem as secondary consumers in many food chains. Tadpoles have significant impact in nutritional cycling. They are herbivorous to omnivorous and are the prey items for both invertebrates and vertebrates. Adult amphibians are the best biological pest controllers. Invertebrates and vertebrates also predate them. Because of their importance in ecosystem, decline or extinction of their population has significant impact on other organisms along with them.

From the ecological perspective, amphibians are regarded as good ecological indicators. Due to high degree of sensitivity, either during tadpole stage or as adults, they respond to very slight change in the environment. Such responses have been used to indicate habitat fragmentation, ecosystem stress, impact of pesticides, and various anthropogenic activities.

Mammals always play a vital role for whichever ecosystem they live in. Mammals are typically important for maintaining services and functions associated with sustaining a balanced ecosystem, such as playing the prey-predator role in the environment, seed dispersal.

Reptiles play an important role in the balance of an Ecosystem. In most ecosystems, reptiles are the vital part of food chains and they play a huge role both as the prey species and the predators in ecosystems. They also play the role of a pollinator. Many serious agricultural pests were eliminated by the reptiles.

The list of various amphibians. Mammals and reptiles spotted in AIET campus is given in the following table.

Species	Zoological name	Picture
Rat snake	Ptyas mucosa	
Squirrels	Sciuridae	
Rat	Rattus	

Garden Lizard	Calotes versicolor	
Stray dogs	Canis lupus familiaris	

2.5 LIST OF BIRD DIVERSITY

Birds occupy many levels of trophic webs, from mid-level consumers to top predators. As with other native organisms, birds help maintain sustainable population levels of their prey and predator species and, after death, provide food for scavengers and decomposers.

Many birds are important in plant reproduction through their services as pollinators or seed dispersers. Birds also provide critical resources for their many host-specific parasites, including lice that eat only feathers, flies adapted for living on birds, and mites that hitchhike on birds from plant to plant and even between countries.

Bird's name	Zoological name	Picture
Woodpecker	Picidae	
Indian cuckoo	Cuculus micropterus	
Indian sparrow	Passer domesticus	

Common myna	Acridotheres tristis	
Pigeon	Columba livia	
Parrot	Psittacula eupatria	

2.6 GREEN COVER

AIET maintains a variety of trees and botanical gardens containing several plants and shrubs. About 30% of the total area is under green cover. The dense green cover of the campus is visible in the satellite image shown below.

It is also an active participant of **Swachh Bharat Mission (SBM)**. Swachh Bharat Abhiyan, or Clean India Mission is a country-wide campaign initiated by the Government of India in 2014 to eliminate open defecation and improve solid waste management. The mission is aimed at progressing towards target 6.2 of the Sustainable Development Goals Number 6 established by the United Nations in 2015. Some of the plants developed in AIET's campus under this mission are depicted in the following pictures.

To nurture the growth of the plants and also to dispose the garden waste. AIET has created a system for composting. Compost is a type of organic matter that can be added to soil to help plants grow.

Composting involves decomposition of flowers, leaves, grass scrapings and yard trimmings over time to create a nutrient-rich organic material that can be added to the soil. The practice decreases the waste generated in the campus. The advantages of composting include

2.7 CAMPUS HYGIENE

Ensuring that the college is well maintained is not only conducive to productivity, it also increases the likelihood of attracting more students. Though everyone aims to keep themselves personally very clean, not much importance is given for keeping the surroundings clean. The sources of water are constantly getting polluted. Unhygienic surrounding invites mosquitoes and flies. Environmental hygiene or sanitation thus helps to reduce the incidences of those diseases which are commonly acquired or transmitted through contaminated water, food and drinks. These include gastrointestinal diseases like diarrhoea, dysentery, cholera etc. and insect-borne infections like malaria, dengue, plague, filariasis, etc. Because of its universal use, water can be the channel for spreading various diseases like typhoid, cholera, dysentery etc.

AIET has a campus cleaning schedule in place which enables it to maintain highest standards of hygiene and sanitation. The following picture shows the effect of maintaining hygiene in toilets and bathrooms.

2.8 CARBON FOOT PRINT AUDITING

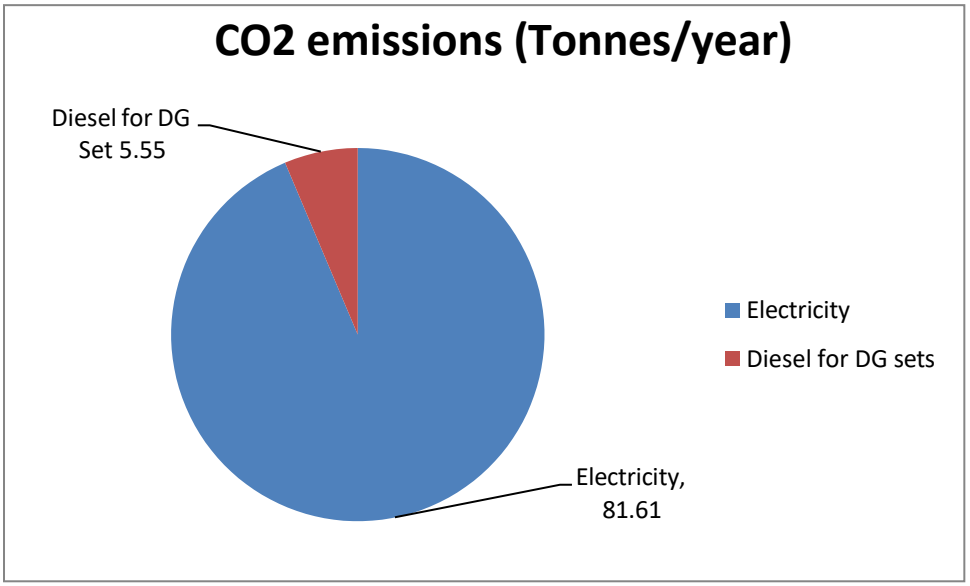
According to World Health Organization (WHO), a carbon footprint is a measure of the impact and organization’s activities have on the amount of carbon dioxide (CO2) produced through the burning of fossil fuels and is expressed as a weight of CO2 emissions produced in tonnes per year. The emissions can be direct or indirect. Direct emissions include the use of energy and transport. The use of electrical energy in the premises is also taken into account as its generation at the source emits carbon di oxide. Indirect emissions for example, pertains to energy consumed in the manufacture of various materials used in the campus and also transport emissions of the students/staff using public transport, visitors and other service providers visiting the campus.

The main source of energy used in the campus is electricity from Tamilnadu Generation and Distribution Corporation Ltd (TANGEDCO). In times of power shutdown the Diesel Generators are operated which use HSD as a fuel. Diesel is also used for cars used by AIET.

The annual energy consumption for the plant during the year 2022 is given below in the table.

Energy source	Annual Quantity	Annual Cost	CO_2 emissions (Tonnes/year)
Electricity	1,01,716 kWh	Rs. 9,48,207	81.61
Diesel for DG sets	2142 litres	Rs. 2,09,916	5.55
Total		**Rs. 11,58,128**	**87.16**

Thus the AIET campus emits 87.16 Tonnes of CO_2 per year only through its energy use.



S.No	Common Name	CO2 Sequestered KG Per Year	Total Number of trees available	Total CO2 Sequestered
Trees				
1	Banana	55	25	1375
2	Jack	37	4	148
3	Mango	44	32	1408
4	Moringa	17	1	17
5	Papaya	7	15	105
6	Custard Apple	8	1	8
7	Guava	14	16	224
8	Golmohar tree	21	1	21
9	Coconut	42	40	1680
10	Ashoka tree	23	13	299
11	Kapok silk cotton tree	16	1	16

12	Tree lettuce	8	8	64
13	Golden shower	17	30	510
14	Pungam	34	6	204
15	Poo arasan	26	5	130
16	Subabul	8	3	24
17	Teak	34	30	1020
18	Pupal tree	17	1	17
Shrubs				
19	Curry leaf	12	5	60
Ornamental Plants				
20	Golden Duranta	0.5	500	250
21	Clerodendran	0.3	100	30
22	Clerodendran	0.3	300	90
23	Crotons	0.2	30	6
24	Idlly poo	0.2	50	10
25	Pedulanthus	0.3	300	90
26	Thuja plant	0.2	10	2
27	Thulasi	0.3	10	3
28	Chembaruthi	2.1	1	2
29	Mini Nanthiyavettai	1.3	20	26
30	Jasmine	0.4	10	4
31	Green Acalypha	0.3	50	15
32	Red Acalypha	0.3	60	18
33	Difenbachiya	0.2	5	1
Palm Trees				
34	Fan palm	3.1	12	37
35	Areca palm	2.9	15	44
	Total CO2 sequestered in the campus per year			**7958**

CO2 Sequestration

CO2 absorption by trees and plants has been calculated as per the methodology given in Annexure – 1.

The total CO2 emissions from the campus is 87.16 Tonnes per year. Due to the greening activities, the CO2 absorption in the campus is 7.96 Tonnes per year.

2.9 HEALTH HAZARDS AND RISK/SAFETY ASSESMENT

Students, staff, and faculties are involved in activities that exposed them to a range of minor to severe or even fatal accidents in academic settings. Managing work environment risks is crucial to any safety and health prevention program. Working activities in academic sites, such as laboratory, may be accompanied by a variety of hazardous risks. While students, staff, and faculties need to stay alert and aware at all times to avoid accidents, the administration needs to know the most common causes

for institute accidents and be able to identify in advance the risk factors to prevent them.

CHAPTER 3

BEST PRACTICES AND RECOMMENDATIONS

3.1 Best Practices

Restricted entry of automobiles

The Institute does not allow entry to all vehicles of students, Non-Teaching, and Teaching Staff inside the campus. In the campus only restricted automobiles can enter and most of them park in the parking area at the entrance gate. This results in safety as well as reduction in air pollution. The measure also does not disturb the species thronging the campus.

Landscaping

Every year during rainy season, Institute takes the initiative of plantation inside the campus.

Effective waste segregation

Due to persistent awareness and creation of a system methodical waste segregation is in practice.

Recommendations

- Promote reuse of one-side used paper
- Encourage planting of fruit bearing trees which can be used by campus residents
- Educate students on the health and environmental benefits of cycling and encourage them to use them
- Adopt Environmentally Responsible Purchasing Policy, and work towards creating and implementing a strategy to reduce the environmental impact of its purchasing decisions. For example star rated appliances can be purchased for reducing energy consumption.
- Celebrate World Environment day to sensitise student community
- Conduct and take part in competitions concerning environment preservation
- Provide posters in the campus to create awareness among the students
- Encourage students to participate in community development activities
- Adopt 'Green Chemistry' that reduces or eliminates the use or generation of hazardous substances in the use of chemicals in the laboratory.
- Conduct exhibitions for parents and public on environment and sustainable practices.
- Declare the campus plastic free and implement it thoroughly
- Formulate an environment policy for the college
- Establish a system for safe disposal of an E-waste

How to calculate the amount of CO2 sequestered in a tree per year
It is estimated that our agro forestry trees, planted in tropical climates, will sequester atmospheric carbon dioxide at an average of 50 pounds of carbon dioxide per tree per year. The rate of carbon sequestration depends on the growth characteristics of the tree species, the conditions for growth where the tree is planted, and the density of the tree's wood. It is greatest in the younger stages of tree growth, between 20 to 50 years.

The methodology is explained below

1. Determine the total (green) weight of the tree.
2. Determine the dry weight of the tree.
3. Determine the weight of carbon in the tree.
4. Determine the weight of carbon dioxide sequestered in the tree
5. Determine the weight of CO2 sequestered in the tree per year

Determine the total (green) weight of the tree

The algorithm to calculate the weight of a tree is:

W = Above-ground weight of the tree in pounds
D = Diameter of the trunk in inches
H = Height of the tree in feet
For trees with D < 11:
W = 0.25D2H
For trees with D >= 11:
W = 0.15D2H
Depending on the species, the coefficient (e.g. 0.25) could change, and the variables D2 and H could be raised to exponents just above or below 1. However, these two equations could be seen as an “average” of all the species’ equations.

The root system weighs about 20% as much as the above-ground weight of the tree. Therefore, to determine the total green weight of the tree, multiply the above-ground Weight of the tree by 120%.
Determine the dry weight of the tree
This is based on an extension publication from the University of Nebraska.

This publication has a table with average weights for one cord of wood for different temperate tree species. Taking all species in the table into account, the average tree is 72.5% dry matter and 27.5% moisture.

Therefore, to determine the dry weight of the tree, multiply the weight of the tree by 72.5%.

Determine the weight of carbon in the tree
The average carbon content is generally 50% of the tree’s total volume.

Therefore, to determine the weight of carbon in the tree, multiply the dry weight of the tree by 50%.

Determine the weight of carbon dioxide sequestered in the tree
CO2 is composed of one molecule of Carbon and 2 molecules of Oxygen.
The atomic weight of Carbon is 12.001115.
The atomic weight of Oxygen is 15.9994.
The weight of CO2 is C+2*O=43.999915.
The ratio of CO2 to C is 43.999915/12.001115=3.6663.
Therefore, to determine the weight of carbon dioxide sequestered in the tree, multiply the weight of carbon in the tree by 3.6663.
Determine the weight of CO2 sequestered in the tree per year
Divide the weight of carbon dioxide sequestered in the tree by the age of the tree.