

(WATER CONSERVATION DATA
Pg. No.: 15 – 19)



NALLAMUTHU GOUNDER MAHALINGAM COLLEGE

(Autonomous Institutions -Affiliated to Bharathiar University)

ISO 9001:2015 Certified and Re-Accredited with B Grade by NAAC

POLLACHI – 642 001



GREEN AUDIT REPORT- 2021-2022

AUDIT / REPORT BY



ALCHEME GREEN ENERGY COMPANY

73977 64900

99948 45487

info@alchemegreenenergy.com

ACKNOWLEDGEMENT

We at Alcheme Green Energy Company, Madurai are thankful to the Principal for giving us the opportunity to carry out Green audit at Nallamuthu Gounder Mahalingam College , Pollachi -642 001. Alcheme Green Energy Company team is also thankful to all other supporting Officers / Staffs of the above institute for their wholehearted support, hospitality and the courtesy extended to the Audit team during the course of the visit.

The following officers from Alcheme Green Energy Company under the guidance of Mr. C. Jebaraj, B.Tech., have carried out the Green Audit.

Name	Qualifications	Certification Number
Mr. C. Jebaraj	B.Tech., PDGEM., DIS., BEE Certificated Energy Auditor, IRCA Certified Lead Auditor - OHSMS Internal Auditor-QMS CII Certified Carbon footprint Professional	EA-9847
Mr. S. Lakshmana Kumaran	B.Tech., MSc.,(Env. Science), MBA., IRCA Certified Lead Auditor ISO 14001 EMS	UID - 351851

The following staff from the Institution were participated in the audit process

Name	Qualification	Designation
Dr. R. Muthukumar	M.A., M.Phil., B.Ed., Ph.D.,	Principal
Dr. R. Manicka Chezhan	M.Sc., M.S., Ph.D.,	IQAC Co-Ordinator
Thiru. K. Srinivasan	M.C.A	Associate Professor Department of Computer Science ERP Co-Ordinator
Dr. A. Srividhya	M.A., M.Phil., Ph.D.,	Assistant Professor Department of English
Dr. P. Archanaa	M.Com., M.Phil., PGDCA., Ph.D., M.A.[HINDI]	Assistant Professor PG Department of Commerce with Computer Applications
Dr. A. Kanakaraj	MCA., M.Sc., M.Phil., Ph.D., DIR	Assistant Professor PG Department of Computer Science

Index

Sl. No.	Contents	Page No
1	Summary of the Green Audit	4
1.1	Green Environmental policy	6
1.2	Total Campus Area	6
1.3	NAAC Grading	6
1.4	Campus Infrastructure	7
2.0	Pre-Audit Stage	9
2.1	Management's Commitment	9
2.2	Scope and Goals of Green Auditing	9
2.3	Benefits of Green Auditing	10
2.4	Target Areas of Green Auditing	10
3.0	Audit Stage	13
3.1	Student Clubs and Forums	13
3.2	Comments on Site Tour	13
3.3	Review of Documents and Records	13
3.4	Review of Policies	14
3.5	Interviews	14
3.6	Site Inspection	14
4.0	Post Audit Stage	15
4.1	Key Findings ,Observations and Evaluations	15
4.2	Consolidation of Audit Findings	37
4.3	Preparation of Action Plan	39
4.4	Follow-up Action and Plans	39
4.5	Environmental Education	39
4.6	Recommendations	40

I. Summary of the Green Audit

Green audit of Nallamuthu Gounder Mahalingam College and its Hostel was carried by Alcheme Green Energy Company. The green audit reports assist in the process of attaining an eco- friendly approach to the sustainable development of the college. Green audit report is a very powerful and valuable communications tool to use when working with various stakeholders who need to be convinced that things are running smoothly and systems and procedures are coping with natural changes and modifications that occur.

A few recommendations are added to curb the menace of waste management using eco-friendly and scientific techniques. This will lead to a prosperous future in context of Green Campus leading to sustainable environment and community development. It has been proved frequently that the practical suggestions, alternatives and observations that have resulted from audits have added positive value to the audited organisation. It is hoped that the results presented in the Green Audit Report will serve as a guide for educating Nallamuthu Gounder Mahalingam College, on the existing environment related practices and resource usage and spawn new activities and innovative practices.

Noteworthy activities

- Installation of 90KW Solar Power plant
- MOU with Tharani Electronics Waste, Coimbatore for proper disposal of E waste
- Maximum utilisation of public transport system by students and staff for commutation is highly appreciable
- Optimum utilisation of Water
- Excellent Solar water Heater system for both Boys and Girls at Hostel
- Hot water from Solar water heater is used in the hostel for cooking to reduce the LPG consumption
- Grey water treatment facilities at Boys Hostel

The audit outputs and recommendations are summarised as follows:

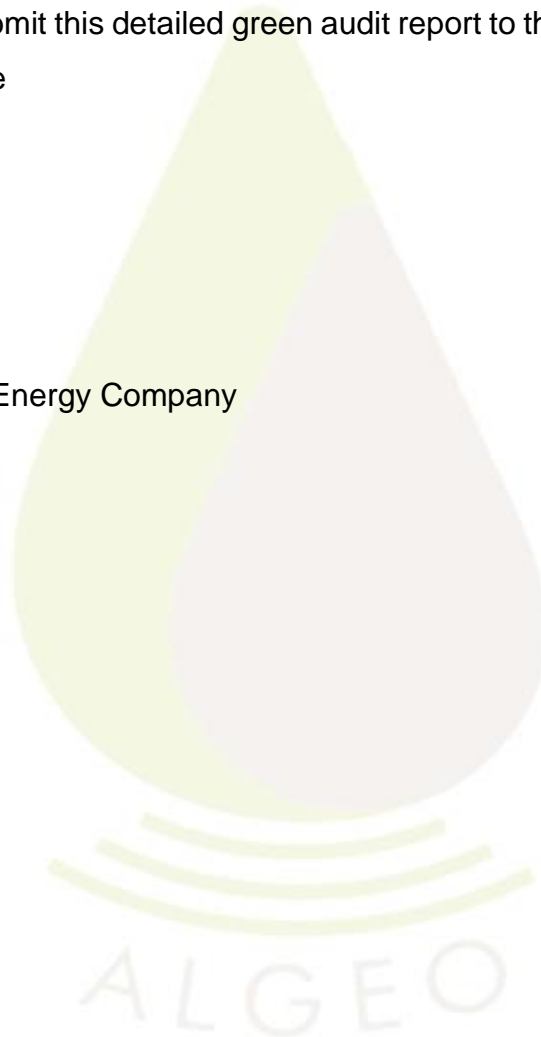
- Total water consumption for Nallamuthu Gounder Mahalingam College and Hostel –50 KL/Day

- Electrical Energy consumption from TNEB GRID alone –2,93,479 units
- Diesel Generator electrical energy consumption - 7,596 units
- Total Electrical Energy consumption is 3,01,075 units
- Total Green House Gas Emission is 259.45 t CO₂e
- Green House gas captured by grown up trees is 20.18 t CO₂ e
- Net Green House Gas emission is 239.27 t CO₂ e

We are happy to submit this detailed green audit report to the Nallamuthu Gounder Mahalingam College



For Alcheme Green Energy Company
Madurai



1.1 Green Policy

Nallamuthu Gounder Mahalingam College has formulated a Green Policy to guide all its green initiatives. Cleanliness in the campus is maintained through proper disposal of wastes, utilization of eco-friendly supplies and effective recycling program. The concept of eco-friendly culture is disseminated among the students through various seminars/workshops and community-oriented programs. Institution strictly follows reduce, reuse and recycle method to limit energy usages

The main objectives are as follows:

- To promote green growth ,create green jobs and maintain green infrastructure
- To execute “Reduce, Reuse, Recycle and Re- earth “ towards waste management, environmental protection and sustainable future
- To reduce potable water consumption
- To create environmental awareness among all the stakeholders of the institution
- To assess and regulate environmental practices of the institution periodically

The Institution vouchsafes:

- Its commitment to sustainability and environmental management
- It reiterates the stand that managing environmental issues is a high priority for the College
- Its commitment to prevent pollution and to continuously improve upon environmental protection.
- A commitment to create environmental awareness

1.2 Total Campus Area & Building Spread Area

- Campus area -**25.98 Acres**
- Build up area – **367644.3 sq.ft.**

1.3 NAAC Grading

- Accredited with 'B' Grade by NAAC

1.4 Campus Infrastructure

Nallamuthu Gounder Mahalingam College is located in calm and quiet surroundings that are conducive to learning. It helps to stimulate both personal and professional growth of the students. The campus is located about 5 Kms from Pollachi .

CLASS ROOMS

Spacious, well ventilated and well-equipped classrooms with projectors and screens facilitate and reinforce effective teaching-learning experience for the faculty and students.

LABORATORIES

Nallamuthu Gounder Mahalingam College has set up highly advanced science and computer laboratories attached to different departments. These are adequately equipped with the latest gadgets, instruments and apparatus with the aim of providing students conceptual as well as practical understanding of the subject through hands-on training.

LIBRARY

The library is a central facility in the college and is fully automated with OPAC (online Public Access Catalogue) system. The Library has a stock of more than 64,000 books, including 52,000 titles and a supply of 63 journals and 45 magazines. CD/DVDs, e-journals, on-line database and audio-video cassettes are also available for reference installed CCTV.

The Central Library aims at enhancing readership and encourage the research and academic activities in the College by rendering information service to all kind of users.

The library is dedicated to support the student's activities and programs of the institution. It accomplishes college mission by maintaining up- to-date collection of books, journals audio-visual items and other library materials related to study.

A rich collection of books and Journals, Magazines, periodicals, reports, reference material are available in the library. Various e-contents and e-Resources are available to facilitate e-Learning.

The library also responds to the needs of the teaching staff for effective teaching and research. To the credit, the library has attracted many research scholars from the neighbourhood colleges in and around Pollachi for reference..

INTERNET

College is fully equipped with round the clock internet facility with 50 Mbps Leased Line internet access to all students

DRINKING WATER

Water is not just an ordinary need to the human beings. It plays a vital role in our life hence the institution gives more care towards the provision of safe water to everyone. The college has installed an Water Doctor which supply pure and safe drinking water.

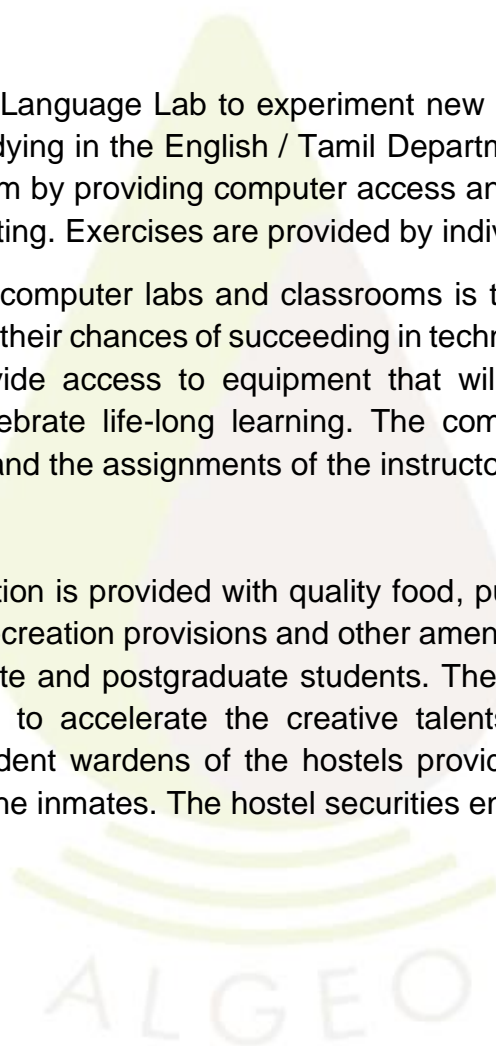
LANGUAGE LAB

The Technology enabled Language Lab to experiment new educational concepts is available for students studying in the English / Tamil Department. This lab enhances instruction in the classroom by providing computer access and exercises in listening, speaking, reading and writing. Exercises are provided by individual instructors

The primary goals of the computer labs and classrooms is to provide assistance to students that will enhance their chances of succeeding in technology-based classroom assignments and to provide access to equipment that will support the needs of instruction where we celebrate life-long learning. The computer labs support the curriculum of the college and the assignments of the instructors.

HOSTEL

In the hostel accommodation is provided with quality food, purified drinking water, 24x7 availability of water, Recreation provisions and other amenities. Accommodation is available for undergraduate and postgraduate students. The hostels provide a calm and relaxing atmosphere to accelerate the creative talents of the students. The teachers who act as resident wardens of the hostels provide moral and emotional support and guidance to the inmates. The hostel securities ensure 24 hours safety.



2. Pre-Audit Stage

A pre-audit meeting provided an opportunity to reinforce the scope and objectives of the audit and discussions were held on the practicalities associated with the audit. This meeting is an important prerequisite for the green audit because it is the first opportunity to meet the auditee and deal with any concerns.

The meeting was an opportunity to gather information that the audit team can study before arriving on the site. The audit protocol and audit plan was handed over at this meeting and discussed in advance the audit itself.

In Nallamuthu Gounder Mahalingam College pre-audit meeting was conducted successfully and necessary documents were collected directly from the College before the initiation of the audit processes. Actual planning of audit processes was discussed in the pre-audit meeting. Audit team was also selected in this meeting with the help of staff and the college management.

The audit protocol and audit plan were handed over at this meeting and discussed in advance of the audit itself. The audit team worked together, under the leadership of the lead auditor, to ensure completion within the brief and scope of the audit.

2.1 Management's Commitment

The Management of the college has shown the commitment towards the green auditing during the pre-audit meeting. They were ready to encourage all green activities. It was decided to promote all activities that are environment friendly and planting more trees on the campus etc., after the green auditing.

2.2 Scope and Goals of Green Auditing

A clean and healthy environment aids effective learning and provides a conducive learning environment. There are various efforts around the world to address environmental education issues.

Green Audit is the most efficient and ecological way to manage environmental problems. It is a kind of professional care which is the responsibility of each individual who are the part of economic, financial, social, environmental factor. It is necessary to conduct green audit in the College campus because students become aware of the green audit, its advantages to save the planet and they become good citizens of our country.

A very simple indigenized system has been devised to monitor the environmental performance of Nallamuthu Gounder Mahalingam College, Pollachi. It comes with a series of questions to be answered. This innovative scheme is user friendly. The aim of this is to help the Institution to set environmental examples for the community and to educate the young learners.

2.3 Benefits of the Green Auditing

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

2.4 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 the improvement.

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, 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.

Auditing for Water Management

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 future. 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. The concerned auditor investigates the relevant method that can be adopted and implemented to balance the demand and supply of water. It is therefore essential that any environmentally responsible Institution examine its water use practices.

Auditing for Energy Management

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 60 W while an energy efficient light emitting diode (LED) uses only less than 20 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.

Auditing for Waste Management

Pollution from waste is aesthetically displeasing and results in large amounts of litter in our communities which can cause health problems. This indicator addresses waste production and disposal of 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 used oils.

Unscientific landfills may contain harmful contaminants that leach into soil and water supplies, and produce greenhouse gases contributing to global climate change. Furthermore, solid waste often includes wasted material resources that could otherwise be channelled into better service through recycling, repair, and reuse. Thus the minimization of solid waste is essential to a sustainable college. It is therefore essential that any environmentally responsible institution examine its waste processing practices.

Auditing for Green Campus Management

Unfortunately, biodiversity is facing serious threats from habitat loss, pollution, over consumption and invasive species. Species are disappearing at an alarming rate and each loss affects nature's balance and our quality of life. Without this variability in the living world, ecological systems and functions would break down, with detrimental consequences for all forms of life, including human beings.

Newly planted and existing trees decrease the amount of carbon dioxide in the atmosphere. Trees play an important ecological role within the urban environment, as well as support improved public health and provide aesthetic benefits to cities. The amount of oxygen that a single tree produces is enough to provide one day's supply of oxygen for people. So while the students are busy studying and working on earning those good grades, all the trees on campus are also working hard to make the air cleaner.

Trees on our campus impact our mental health as well; studies have shown that trees greatly reduce stress, which the students feel.

Auditing for Carbon Footprint

Commutation of stakeholders has an impact on the environment through the emission of greenhouse gases into the atmosphere consequent to burning of fossil fuels (such as petrol). The most common greenhouse gases are carbon dioxide, water vapour, methane, nitrous oxide and ozone. Of all the greenhouse gases, carbon dioxide is the most prominent greenhouse gas, comprising around 415 ppm of the Earth's atmosphere. The release of carbon dioxide gas into the Earth's atmosphere through human activities is commonly known as carbon emissions.

An important aspect of doing an audit is to be able to measure your impact so that we can determine better ways to manage the impact. In addition to the water, waste, energy and biodiversity audits we can also determine what our carbon footprint is, based on the amount of carbon emissions created. One aspect is to consider the distance and method travelled between home and college every day. It undertakes the measure of bulk of carbon dioxide equivalents exhaled by the organization through which the carbon accounting is done. It is necessary to know how much the organization is contributing towards sustainable development. It is therefore essential that any environmentally responsible institution examine its carbon footprint.

3. Audit Stage

In Nallamuthu Gounder Mahalingam College green auditing was done with the help of Alcheme Green Energy Company involving different student groups, teaching and non-teaching staff. The green audit began with the teams walking through all the different facilities at the college, determining the different types of appliances and utilities as well as measuring the usage per item and identifying the relevant consumption patterns and their impacts.

The staff and learners were interviewed to get details of usage, frequency or general characteristics of certain appliances. Data collection was done in the sectors such as Energy, Waste, Greening, Carbon footprint and Water use. College records and documents were verified to clarify the data received through survey and discussions.

3.1 Student Clubs and Forums Involved

- Green Society, National Service Scheme(NSS)

3.2 Comments on Site Tour

Site inspection was done along with students and staff. Questionnaires were answered during the site tour. Students and staff took much interest in the data collection processes. It was quite interesting and fascinating. It was an environmental awareness program for the students who participated in the green auditing. The experience of green auditing was totally a new experience for most of the students. They have shared their expectations about a green campus and gave suggestions for the audit recommendations.

3.3 Review of Documents and Records

Documents such as electricity and water charge remittance, laboratory equipment registers, audited statements and office registers were examined and data were collected. College calendars, college magazines, annual report of the college and NAAC self-assessment reports, UGC report etc. were also verified as a part of data collection.

3.4 Review of Policies

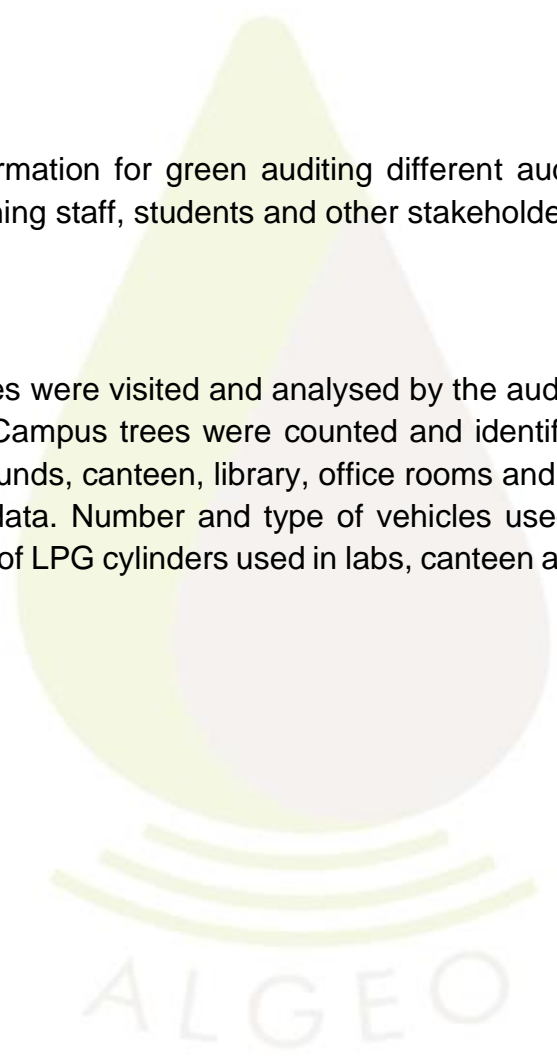
Discussions were made with the College management regarding their policies on environmental management. Future plans of the college were also discussed. The management would formulate an environment /green policy for the college in the light of green auditing. The purpose of the green audit was to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the Institution.

3.5 Interviews

In order to collect information for green auditing different audit groups interviewed teaching and non-teaching staff, students and other stakeholders of the college.

3.6 Site inspection

College and its premises were visited and analysed by the audit-teams several times to gather information. Campus trees were counted and identified. Medicinal /Herbal plants garden, play grounds, canteen, library, office rooms and parking grounds were also visited to collect data. Number and type of vehicles used by the stakeholders were counted. Number of LPG cylinders used in labs, canteen and hostel kitchen were also counted.



4. Post Audit Stage

The base of any green audit is that its findings are supported by documents and verifiable information. The audit process seeks, on a sampled basis, to track past actions, activities, events, and procedures to ensure that they are carried out according to systems requirements and in the correct manner.

Green audits form a part of a 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. Although green audits are carried out using policies, procedures, documented systems and objectives as a test, there is always an element of subjectivity in an audit.

The essence of any green audit is to find out how well the environmental organisation, environmental management and environmental equipment are performing. Each of the three components is crucial in ensuring that the organisation's environmental performance meets the goals set in its green policy. The individual functioning and the success of integration will all play a role in the degree of success or failure of the organisation's environmental performance.

4.1 Key Findings, Observations and Evaluations

a) Water Usage at Nallamuthu Gounder Mahalingam College

Total number of students studied during the academic year 2021-2022: 5090

Teaching & non-Teaching staff in the institution during the academic year 2021-2022:258

Total number of stake holders: 5348

Water for college and hostel

Municipal water-34,000 litres/day

Borewell water- 16,000 litres/day

Total water usage -50, 000 litres/day

Main water uses in the College campus are Drinking, Rest room, Canteen and Lab

Water usage in the College- 41 KL / Day

Water usage per day per stakeholder in the college – 7.66 litres

Water usage at college

Sl. No	Place	Water usage Quantity Litres / Day
1	Drinking	5000
2	Rest room	25,000
3	Canteen	4000
4	Lab	1000
5	Garden	6000
	Total	41,000

Waste water generation in the college – 30 KL/day

Water usage at Hostel

Number of students and staff residing in the hostel in the year 2021-2022: 91

Main water uses in the Hostel are Drinking, Washing of clothes, Cooking & Vessel cleaning and for Rest room

Water usage at Hostel - 9 KL / Day

Water usage at Hostel

Sl. No	Place	Water usage Quantity Litres / Day
1	Drinking	200
2	Cooking	400
3	Rest room	900
4	Bathing	1300
5	Clothes washing	1300
6	Vessel Cleaning	400
7	Garden	4,500
	Total	9,000

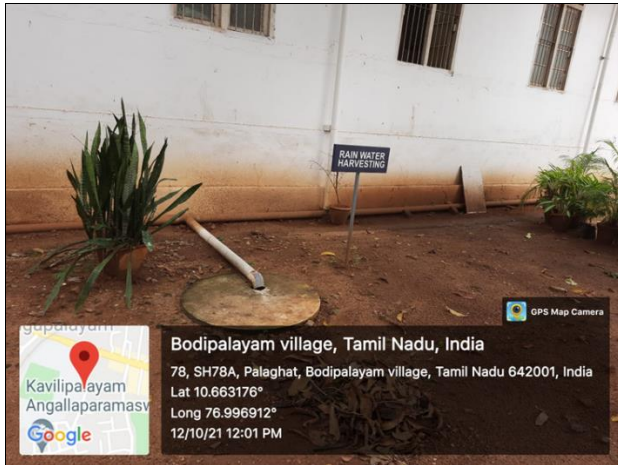
Waste water generation in the Hostel – 4.3 KL /day

For drinking water: Water Doctor system was installed

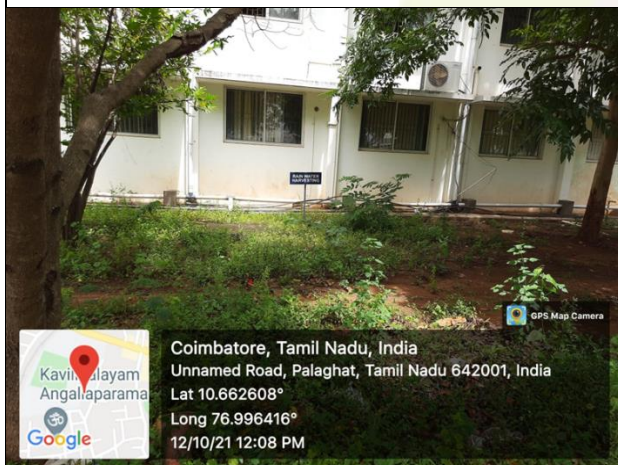
- Analysis of Drinking water and bore well water samples are done periodically
- The quality of Drinking water is within the norms.
- Microbial test for Drinking water is carried out on periodical manner.

Rainwater Harvesting

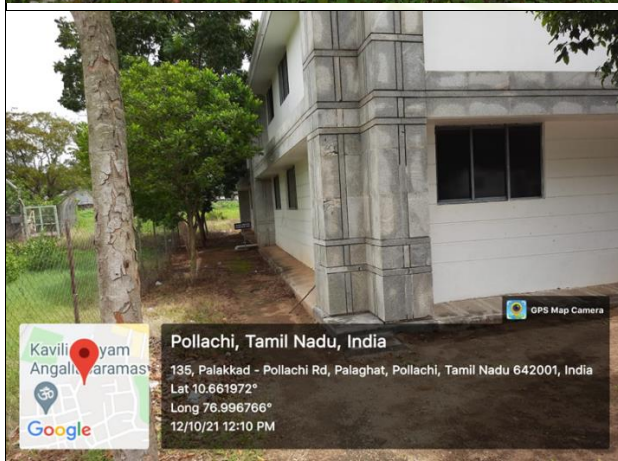
At Nallamuthu Gounder Mahalingam College, rainwater harvesting is done effectively to enhance the ground water level. The institution has rainwater harvesting pits at various locations and they are being maintained properly. The water drained during the rainy season is allowed to flow into the pits constructed in various places inside the campus including the Hostel Premises.



Rainwater harvest area covered in the college -45,799 sqft



Rainwater harvest area covered in the hostel- 16,276 Sqft



In addition, all the rainwater from open floor area are collected through Rainwater collection channel and directed to open well

Excellent collection system for effective utilisation of rainwater



Water Conservation initiatives

- Periodical preventive maintenance are carried out to avoid leakages

b) Energy

Non Renewable Energy

ELECTRICAL ENERGY CONSUMPTION IN THE COLLEGE AND HOSTEL

SL.NO	PLACE	UNITS CONSUMED
1	COLLEGE	264949
2	HOSTEL	28530
	TOTAL	293479

Diesel Generator Electrical Energy Consumption: 14,850 units

Total electrical energy consumption

SL.NO	SOURCE	UNITS CONSUMED
1	TNEB	293479
2	DIESEL GENERATOR	7596
	Total	301075

Total Electrical Energy consumption from TNEB grid and DG in the College and Hostel 3,01,075 units

LPG

LPG gas is used in the hostel for cooking and used in the college lab for heating

LPG cylinders used- commercial cylinders of 19 kgs capacity

- LPG consumption in the hostel mess during the year 2021-2022- 200 cylinders
- LPG consumption in the college during the year 2021-2022- 2 cylinder.
- Total LPG consumption during the year 2021-2022- 3838 KGs (202 Cylinders)

DIESEL CONSUMPTION FOR TRANSPORT-Nil

College is not running buses for transport

Renewable Energy

Solar Electrical Energy

- 90KW On Grid Roof Top Solar Power Plant
- Solar Power Generation from power plant-7583 units
- Solar Street Lights -5 Nos
- Power of LED lamp-20watts
- Solar Power generation from Solar street lights-438 units
- Total Solar power generation - 8021 units

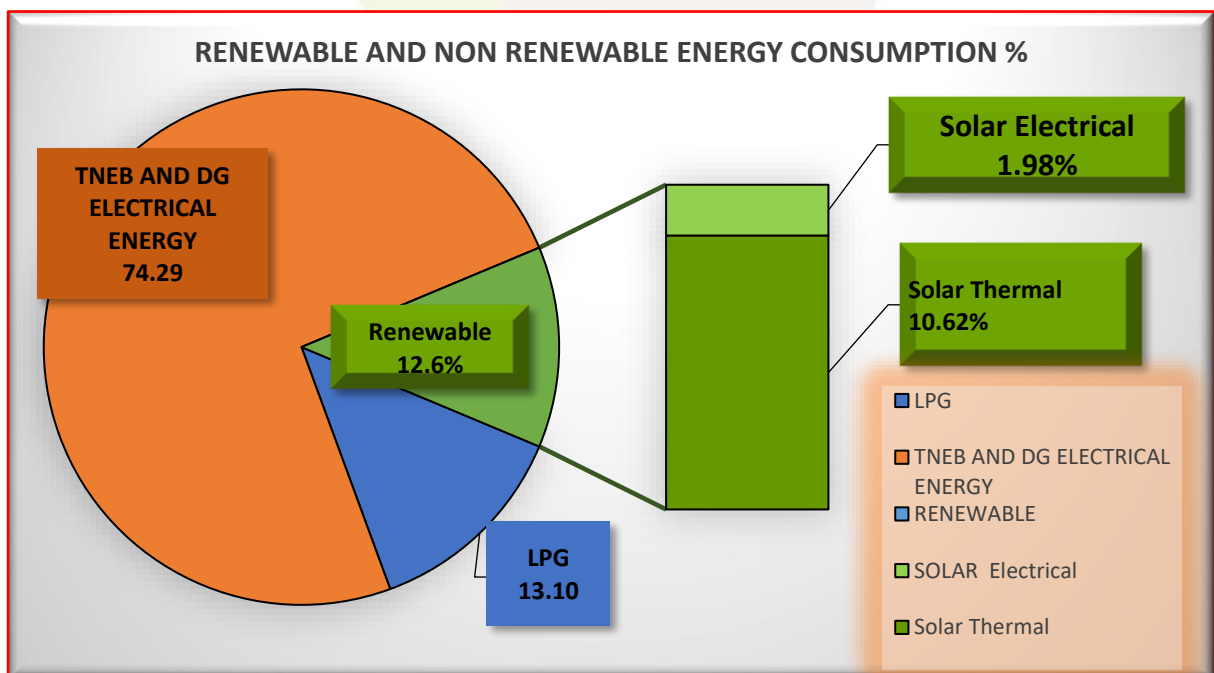
Solar Water Heater

Total capacity of Solar Water Heaters-4100 Litters Per Day

TOTAL ENERGY CONSUMPTION

Renewable and Non-Renewable(conventional) energy distribution

ENERGY CONSUMPTION	PERCENTAGE
NON RENEWABLE	
LPG	13.10
TNEB AND DG ELECTRICAL ENERGY	74.29
RENEWABLE	
SOLAR Electrical	1.98
Solar Thermal	10.62



The energy conservation measures followed

- High volume Low Speed fans are provided in the auditorium
- Maximum utilisation of day lights at auditorium, hostel and colleges
- Staff and Students are made aware of using public transport system
- Individual vehicle usage is reduced to the minimum level
- Periodical maintenance and overhauling of generators is being carried out
- The fans, lights, air-conditioners and other electronic and electrical equipments are switched off when not in use.
- Lights and fans are switched off by the students whenever they are out of hostel rooms
- Replacing conventional electrical light fittings with energy efficient Light-Emitting Diode (LED) bulbs.
- Replacing old high energy consuming appliances with star rated energy efficient appliances.
- Computers are switched to sleep mode or hibernate mode automatically when not in use.
- At the end of every practical session, Computer monitors and UPS are switched off.
- Soft copies are maintained instead of hard copies, to reduce power consumption and paper.



b) WASTE

Quantity of waste generated:-

Liquid Waste Generation

Waste water generation in the College - 30 KL /day

Waste water generation in the Hostel - 4.3 KL /day

Solid Waste Generation

College

- Biodegradable—<1kg/day

Office

- Non-biodegradable —< 0.1kg/day

College Canteen

- Biodegradable —< 1 kg/day
- Non-biodegradable —<0.5kg/day
- Aluminium foil —<0.1kg/day

Hostel

- Biodegradable (Food waste) - 10-15 kg/day
- Non-biodegradable – <0.5kg/day

Open area

- Biodegradable (Dry leaves)- 5-10 Kgs/Day

Plastic waste

- Less than 75 grams. per day

e-Waste

- Less than 200 kgs/year

Waste Management

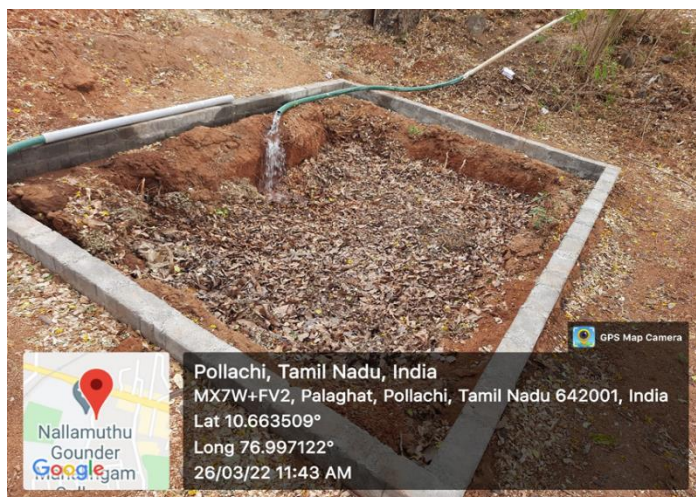
Liquid waste Management

- Grey water from kitchen is used for gardening
- Sewage water from boys' hostel is collected separately and treated in the waste water treatment plant and treated clear water is used for gardening



Bio-degradable waste management

- Bio-Degradable and non-biodegradable waste are collected in separate bins provided.
- Dry leaves are collected separately, dumped in the pits and converted into Bio fertilizer
- Every Year around 1000 Kgs Bio composts is produced



Plastic Waste Management

The college has been declared as a 'Plastic Free' zone.

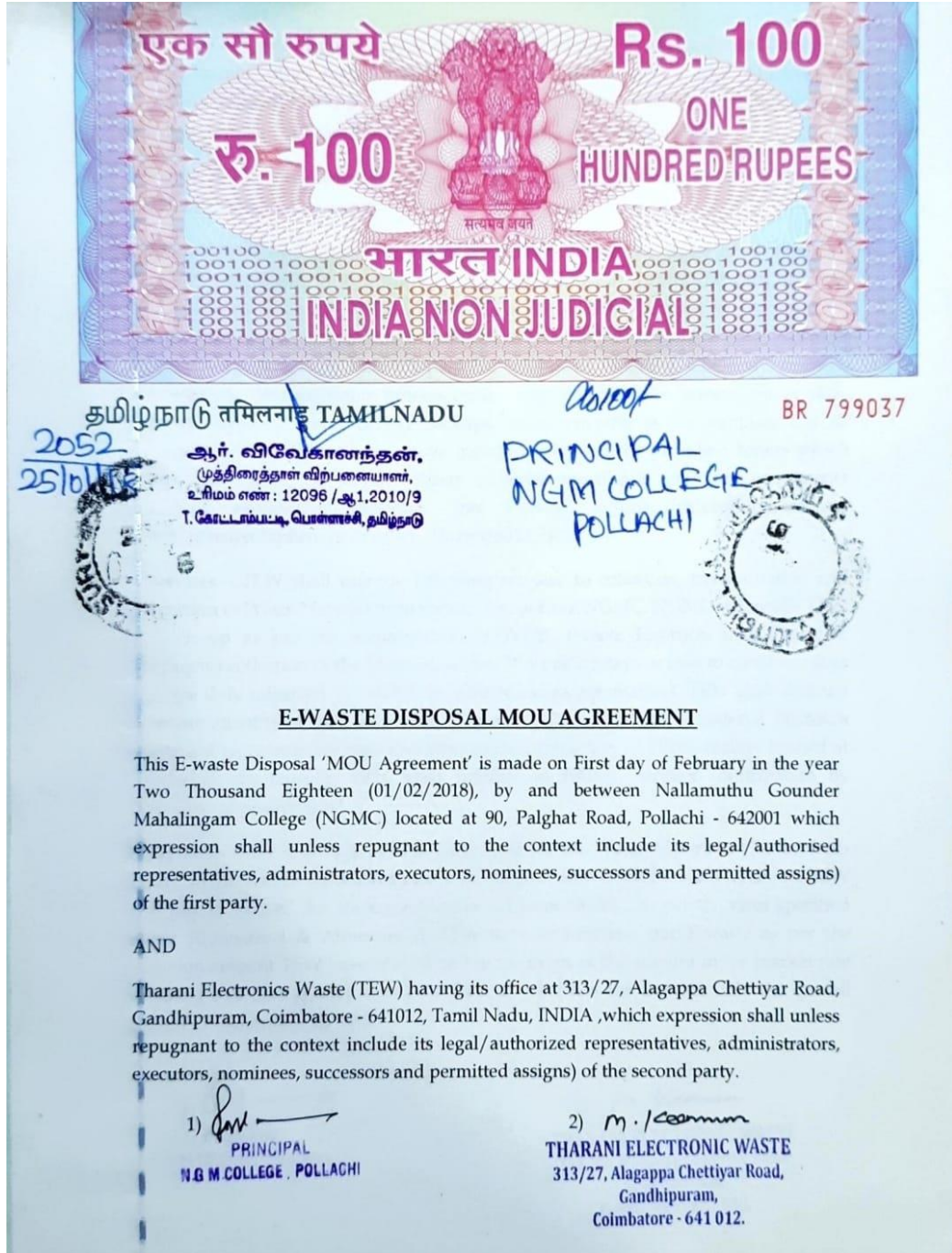
- Use of polythene bags, plastic cubs and laminated papers are prohibited.
- Students and staff are advised to bring cloth bags
- All the stake holders are motivated to use stainless steel water bottles and lunch boxes.
- Plastic utensils in the stores, canteen and hostel kitchen are replaced with stainless steel plates, tumblers etc
- Plastic waste that comes in through lab equipment's package, empty chemical containers etc. are collected separately and disposed periodically for recycling.

Used Battery Management

- Used batteries are disposed through Buy back method

e-Waste Management

- All electronic machineries are purchased under Buy-Back agreement for proper disposal of e waste to recycler
- MOU signed with Tharani Electronics Waste, Coimbatore for proper disposal of E waste



Other Solid Waste Management

- Solid wastes generated from damaged furniture are sent to waste wood collection centre. Useful furniture and other wooden materials are made from the waste
- Glass wastes are disposed periodically through municipal waste collection system.

Waste Reduction

- ❖ Students are instructed not to waste paper while writing examinations.
- ❖ Reusing one side paper
- ❖ Where ever possible, printing on both sides of papers
- ❖ In order to reduce the use of paper the following initiative were taken by E - Governance
 - Attendance
 - Payment of fees
 - Submission of e-assignment through email
 - Digitalisation of Staff profiles and details about students
 - E – Circular through SMS, WhatsApp or Email
 - Online Admission Process – Printing of applications reduced & submission of applications through admission portal.
 - All inter department communications are through intranet
 - Online exams are conducted to reduce the paper usage.

Waste Recycling

Recyclable papers are collected and kept and disposed as mixed waste to paper mills through authorized Vendors.

- The answer scripts after the publication of results are sent for recycling.
- e wastes are collected and sent to authorised recycler.



d) Green Campus

Nallamuthu Gounder Mahalingam College, Pollachi being located in the regime surrounded by agriculture-based villages, naturally the institute is overwhelmed with the atmosphere of greenery. The Institution too does ever take meticulous efforts to maintain and retain the Nature given atmosphere with planting of new saplings. The campus is lush green with gardens, lawns and plants wherever there is open space

- The eco-friendly ambience of the campus is a noteworthy feature of Nallamuthu Gounder Mahalingam College
- Green belt is developed in all possible open area are being converted into greenery
- The Green Society is maintaining a medicinal garden plant which is spread over 450 sqft area. Around 40 numbers of medicinal plants are there inside the campus
- Special initiatives are taken by the Green Society and new saplings are planted every year. Altogether, there are 961 plants in the campus.
- The list of trees and the arrival of new saplings are recorded every year.

Routine Green Practices

- Every year, new tree saplings are planted inside the college campus.
- The Green campus drive is an initiative of the College to protect the environment.
- The Green Society of the college take special care to keep the campus neat and green.
- Environmental awareness programs are conducted regularly to spread the message of environment preservation.



Awareness programs

- Drawing competition on Nature and Life



- Rally on international day for action for rivers



NALLAMUTHU GOUNDER MAHALINGAM COLLEGE
POLLACHI - 642001
SWAMI VIVEKANANDAR MANAVAR SINTHANAI MANDRAM
IQAC/2021-22/MAR/182

In Commemoration of
International Day of Action for Rivers
Organizes
Awareness Rally on Importance of Rivers

Flag off by - Ms. Shyamala Navaneethakrishnan
Chairman- Pollachi Municipality
&
Er. V. Thamilmani
Deputy Superintendent of Police - Pollachi

In the presence of
Dr. R. Muthukumaran
Principal - NGM College

Chief Co-ordinator
Prof. K. Srinivasan

Co-ordinators
Dr. K. Dhanalakshmi
Dr. P. Archanaa
Dr. R. Somasundaram
&
Students of Swami Vivekanandar
Manavar Sinthanai Mandram

14th March 2022
@ 11 A.M

- World Meteorological Day



GREEN BELT DEVELOPMENT



GREEN BELT DEVELOPMENT



List of trees, shrubs and herbs in NGMC

List of plants	
1	<i>Abrus precatorious</i> Linn. Herb
2	<i>Abutilon indicum</i> L. Sweet. shrub
3	<i>Acacia meamsii</i> tree
4	<i>Acalypha chamaedrifolia</i> (Lam.) Mull. Arg. herb
5	<i>Acalypha indica</i> Linn. herb
6	<i>Acalypha wilkesiana</i> Muell. Arg. herb
7	<i>Acanthospermum hispidum</i> D.C. herb
8	<i>Achras sapota</i> Linn. tree
9	<i>Achyranthes aspera</i> Linn. herb
10	<i>Aegle marmelos</i> L. Corr. tree
11	<i>Aerva javanica</i> Pers. herb
12	<i>Aerva lanata</i> Juss. herb
13	<i>Agave foetida</i> (L.) Haw. herb
14	<i>Albizia lebbbeck</i> (L.) Benth. tree
15	<i>Albizia amara</i> (Roxb.) B. Boivin Tree
16	<i>Alkumanda cathartica</i> Linn. shrubby climber
17	<i>Aloe vera</i> (L.) Burm. f. herb
18	<i>Alstonia scholaris</i> L. R. Br. tree
19	<i>Alternanthera pungens</i> Kunth. herb
20	<i>Alternanthera bettzickiana</i> (Regel) G. Nicholson herb
21	<i>Alternanthera sessilis</i> (L.) R. B. herb.
22	<i>Amarantus blitum</i> Linn. herb
23	<i>Amaryllis carnea</i> Linn. herb
24	<i>Andrographis paniculata</i> Nees. herb
25	<i>Annona squamosa</i> Linn. tree
26	<i>Araucaria heterophylla</i> (Salisb) Franco. tree
27	<i>Aristolochia bracteolata</i> Lam. Her
28	<i>Artocarpus heterophyllus</i> Lam. tree
29	<i>Asperagusracemosus</i> Willd. herb
30	<i>Asystasiagangetica</i> (L.) T. Anderson herb
31	<i>Axonopus compressus</i> (SW) P. Beauv. herb
32	<i>Azadiracta indica</i> A. Juss. Tree
33	<i>Bambusa vulgaris</i> Schrad. tree
34	<i>Barleria cristata</i> Linn. Herb
35	<i>Bauhinia purpurea</i> Linn. Shrub
36	<i>Bauhinia racemosa</i> Lam. shrub
37	<i>Boerhaavia diffusa</i> Linn. herb
38	<i>Boerhaavia erecta</i> Linn. Herb
39	<i>Bougainvillea spectabilis</i> Willd. shrub.
40	<i>Brachiaria semiundulata</i> (Hochst. ex A. Rich.) Stapf herb
41	<i>Cajanus scarabaeoides</i> (L.) Thouars herb
42	<i>Calotropis gigantea</i> R. Br. shrub
43	<i>Canna indica</i> Linn. herb
44	<i>Cardiospermum halicacabum</i> Linn. herb

45	<i>Carica papaya</i> Linn. tree
46	<i>Cassia fistula</i> Linn. Tree
47	<i>Cassia occidentalis</i> Linn shrub.
48	<i>Celosia argentea</i> Linn. herb
49	<i>Celosia cristata</i> Linn. herb
50	<i>Centella asiatica</i> (Linn.) Urb. Herb
51	<i>Chromolaena odorata</i> (L.) King & H.E. Robins. herb
52	<i>Cissus quadrangularis</i> Linn. herb
53	<i>Citrus aurantifolia</i> (Christm.) Swingle shrub
54	<i>Citharexylum spinosum</i> L
55	<i>Cleome viscosa</i> Linn. Herb
56	<i>Clitoria ternatea</i> Linn. Herb
57	<i>Coccinea grandis</i> (L.) Voigt herb.
58	<i>Cocos nucifera</i> Linn. tree
59	<i>Commelina benghalensis</i> Linn.
60	<i>Commelina diffusa</i> Burm.f. herb
61	<i>Corchorus olerius</i> Linn. herb
62	<i>Corchorus urticifolius</i> Wight & Arn. Herb
63	<i>Corchorus trilocularis</i> L herb
64	<i>Corchorus tridens</i> L herb
65	<i>Cratogeomys roxburghii</i> R.Br. tree
66	<i>Crinum viviparum</i> (Lam.) R. Ansari & V.J. Nair herb
67	<i>Crossandra infundibuliformis</i> (L.) Nees herb
68	<i>Crotalaria retusa</i> Linn. Herb
69	<i>Crotalaria verrucosa</i> Linn. herb
70	<i>Croton bonplandianus</i> Baillon herb.
71	<i>Cuscuta reflexa</i> Roxb. Herb (parasitic)
72	<i>Cycas circinalis</i> Linn. Tree-Gymnosperm
73	<i>Cycas revoluta</i> Linn. Tree
74	<i>Cymbopogon caesius</i> (Hook. & Arn.) Stapf herb-grass
75	<i>Cynodon dactylon</i> (L.) Pers. Herb -grass
76	<i>Cyperus rotundus</i> Linn. Herb- grass
77	<i>Cyperus iria</i> Linn. Herb-grass
78	<i>Dactyloctenium aegyptium</i> (L.) P. Beauv. herb-grass
79	<i>Datura stramonium</i> L herb
80	<i>Delonix regia</i> (Hook.) Raf. tree.
81	<i>Dendrophthoe falcata</i> (L.f.) Ettingsh shrub
82	<i>Dieffenbachia picta</i> Lodd. Herb
83	<i>Digitaria bicornis</i> (Lam.) Roem. & Schult. herb
84	<i>Dracaena marginata-coloroma</i> Lam. tree monocot
85	<i>Duranta repens</i> Linn. shrub
86	<i>Dysoxylum wendlandii</i> (H. Wendl.) Beentje & J. Drans tree
87	<i>Ehretia ovalifolia</i> Wight Tree
88	<i>Echinochloa colona</i> (L.) Link. Herb grass
89	<i>Eleusine indica</i> (L.) Gaertn. Herb grass

90	<i>Erianthusrepens</i> (Willd.) P. Beauv herb grass
91	<i>Eucalyptus globulus</i> Labill. tree
92	<i>Euphorbia heterophylla</i> Linn. Herb
93	<i>Euphorbia hirta</i> Linn. herb
94	<i>Evolvulus alsinoides</i> Linn. herb
95	<i>Ficus benghalensis</i> Linn. Tree
96	<i>Ficus benjamina</i> Linn. Tree
97	<i>Ficus religiosa</i> Linn. tree
98	<i>Filicium decipiens</i> (Wt. & Arn.) Thw. Tree
99	<i>Geissaspis cristata</i> Wight & Arn. herb
100	<i>Glimus lotoides</i> Linn. herb
101	<i>Gmelina arborea</i> Roxb. Tree
102	<i>Gomphrena globosa</i> Linn. herb
103	<i>Gomphrena serrata</i> Linn. herb
104	<i>Grangeamaderaspatana</i> (L.) Poir. herb
105	<i>Gynandropsis pentaphylla</i> DC herb
106	<i>Hamelia patens</i> Jacq. shrub
107	<i>Hedyotis umbellata</i> (L.) Lam. Herb
108	<i>Heliconia rostrata</i> Ruiz & Pavon shrub
109	<i>Heliotropium indicum</i> Linn. herb
110	<i>Hibiscus rosa-sinensis</i> Linn. Shrub
111	<i>Hibiscus vitifolius</i> Linn herb
112	<i>Hyptis suaveolens</i> (L.) Poitier herb
113	<i>Indigofera linnaei</i> Ali. Herb
114	<i>Indigofera tinctoria</i> Linn. Herb
115	<i>Ipomea marginata</i> (L.) R. Br. Climber
116	<i>Ipomoea quamoclit</i> Linn. climber
117	<i>Ixora coccinea</i> Linn shrub
118	<i>Jasminum sambac</i> (L.) Aiton climbing shrub.
119	<i>Jatropha gossypifolia</i> Linn. Shrub
120	<i>Justicia adathoda</i> Linn. Shrub
121	<i>Justicia betonica</i> Linn. herb
122	<i>Kedrostis foetidissima</i> Jacq. Cogn. herb
123	<i>Khaya senegalensis</i> (Desr.) A. Juss. Tree
124	<i>Lactuca serriola</i> Linn. Herb
125	<i>Lantana camara</i> Linn. shrub
126	<i>Leucaena leucocephala</i> (Lam.) de wit. Tree
127	<i>Leucas aspera</i> (Willd.) Link herb
128	<i>Magnolia champaca</i> (L.) Baill. Ex Pierre tree
129	<i>Mangifera indica</i> Linn. tree
130	<i>Marsilea quadrifoliata</i> Linn. herb
131	<i>Millingtonia hortensis</i> Linn. tree
132	<i>Mimosa pudica</i> Linn. herb
133	<i>Mimusops elengi</i> Linn. tree
134	<i>Morinda tinctoria</i> Roxb. tree
135	<i>Morus indica</i> Griff. shrub
136	<i>Mukia maderaspatana</i> Linn.

137	<i>Murraya koenigii</i> (L.) Sprengel shrub
138	<i>Musa paradisiaca</i> Linn. Tree
139	<i>Nerium oleander</i> Linn. shrub
140	<i>Ocimum basilicum</i> Linn. Herb
141	<i>Ocimum canum</i> Sims. herb
142	<i>Ocimum tenuiflorum</i> Linn. herb
143	<i>Opuntia stricta</i> (Haw.) Haw. herb
144	<i>Oplismenus compositus</i> (L.) P. Beauv. Grass
145	<i>Oroxylum indicum</i> (L.) Benth. ex Kurz shrub
146	<i>Oxalis corniculata</i> Linn. herb
147	<i>Panicum colonum</i> Linn. Herb=grass
148	<i>Panicum maximum</i> Jacq. Herb - grass
149	<i>Parthenium hysterophorus</i> Linn. Herb
150	<i>Passiflora foetida</i> Linn. Climber
151	<i>Pavonia dorata</i> Willd herb
152	<i>Peltophorum pterocarpum</i> (DC.) K. Heyne tree
153	<i>Pergularia daemia</i> (Forssk.) Chiov climber
154	<i>Perotis indica</i> (L.) Kuntze herb - grass
155	<i>Phleum pretense</i> Linn. Herb grass
156	<i>Phoenix canariensis</i> Chabaud. Tree
157	<i>Phoenix dactylifera</i> Linn. tree
158	<i>Phyllanthus amarus</i> Schum. herb
159	<i>Phyllanthus emblica</i> Linn. Tree
160	<i>Phyllanthus maderaspatensis</i> Linn. herb
161	<i>Phyllanthus acidus</i> (L.) Skeels. tree
162	<i>Physalis peruviana</i> Linn. herb
163	<i>Pisonia alba</i> Span. tree
164	<i>Pithecellobium dulce</i> (Roxb.) Benth. tree
165	<i>Plumeria rubra</i> Linn. tree
166	<i>Polyalthia longifolia</i> Hook. f. & Thoms. tree
167	<i>Pongamia pinnata</i> (L.) Pierre. tree
168	<i>Portulacaoleracea</i> Linn. herb
169	<i>Priva cordifolia</i> (L.f.) Druce herb
170	<i>Psidium guajava</i> Linn. Tree
171	<i>Pterocarpus marsupium</i> Roxburgh. tree
172	<i>Pterocarpus santalinus</i> L. f. Tree
173	<i>Quisqualis indica</i> Linn. Climber
174	<i>Ricinus communis</i> Linn. Shrub
175	<i>Roystonea regia</i> (Kunth) O.F. Cook tree
176	<i>Russelia equisetiformis</i> Schlecht. & Cham. Herb
177	<i>Sansevieria roxburghiana</i> Schult. & Schult. f. herb
178	<i>Santalum album</i> Linn. tree
179	<i>Senna siamea</i> (Lam.) H.S. Irwin & Barneby tree
180	<i>Sida cordifolia</i> Linn. Herb
181	<i>Sida rhombifolia</i> Linn. herb
182	<i>Simarouba glauca</i> DC. tree
183	<i>Solanum nigrum</i> Linn. herb

e) Carbon Footprint

Release of carbon dioxide into the atmosphere is contributes to the global warming and increasing the pace of climate change. More trees in the campus will make a source of sink for the carbon dioxide and for other greenhouse gases.

Average distance travelled from home to College and back to home by four wheelers=16KM

Average distance travelled from home to College and back to home by two wheelers=12 KM

Average Four Wheeler Fuel efficiency assumed = 20KM/ Lit

Average Two Wheeler Fuel efficiency assumed = 60KM/ Lit

No of cars used by both students and staff =17

No of two wheelers used by both students and staff =693

No of College working days during the year 2021-2022-180 days

No of days Hostel was occupied with students in the year 2021-2022-252 days

Fuel (Petrol)consumption by two wheelers = No of days * No of vehicles*12/60	12613	lits
------------------------------------------------------------------------------	-------	------

Fuel (Petrol)consumption by four wheelers = No of days * No of vehicles*16/20	1237.6	Lits
-------------------------------------------------------------------------------	--------	------

Total quantity of petrol consumed by both two wheelers and four wheelers	13850	Lits
--------------------------------------------------------------------------	-------	------

Diesel consumed by DG sets during the year 2021-2022	2532	Lits
------------------------------------------------------	------	------

Total Diesel consumption during the year 2021-2022	2532	lits
----------------------------------------------------	------	------

LPG consumption in the college	38	kgs
--------------------------------	----	-----

LPG consumption in hostel mess and canteen	3800	kgs
--------------------------------------------	------	-----

Total LPG consumption	3838	KGS
-----------------------	------	-----

Total Power consumed in the COLLEGE and HOSTEL in the year 2021-2022	293479	units
----------------------------------------------------------------------	--------	-------

GHG EMISSION

Green House Gas emission due to petrol	32686.47	Kge CO2
----------------------------------------	----------	---------

Green House Gas emission due to diesel	6760.44	Kge CO2
----------------------------------------	---------	---------

Green House Gas emission due to LPG	11629.14	Kge CO2
-------------------------------------	----------	---------

Green House Gas emission due to Grid power	208370.09	Kge CO2
--------------------------------------------	-----------	---------

Total GHG emission per year	259446.14	Kge CO2
-----------------------------	-----------	---------

Total GHG emission per year	259.45	t CO2 eq
------------------------------------	---------------	-----------------

GHG Captured by tress

Fully grown up trees inside the campus	961	trees
----------------------------------------	-----	-------

Greenhouse gas captured by trees	20.18	t CO2 eq
-----------------------------------------	--------------	-----------------

Net Green House Gas Emission per year	239.27	t CO2 eq
----------------------------------------------	---------------	-----------------

GHG AVOIDED due to usage of Renewable Energy

Solar power generation from Solar power plant	7583.00	units
-----------------------------------------------	---------	-------

Solar power generation for street lights	438.00	units
------------------------------------------	--------	-------

Total solar energy used	8021.00	units
-------------------------	---------	-------

Greenhouse gas emission avoided due to solar power generation	6577.22	KGs
---------------------------------------------------------------	---------	-----

Greenhouse gas emission avoided due to solar power generation	6.58	t CO2 eq
---------------------------------------------------------------	------	----------

Total Solar Water Heater installed	4100.00	LPD
------------------------------------	---------	-----

Greenhouse gas emission avoided due to Solar Water Heater	30.57	t CO2 eq
-----------------------------------------------------------	-------	----------

Total GHG avoided by usage of Renewable Energy	37.14	t CO2 eq
-------------------------------------------------------	--------------	-----------------

4.2 Consolidation of Audit Findings

We hope that students would have developed a greater appreciation and understanding of the impact of their actions on the environment. They have successfully been able to determine the impacts on the environment through the various auditing exercises. Participating in this green auditing procedure they have gained knowledge about the need of sustainability of the college campus. It will create awareness on the use of the Earth's resources in their home, college, local community and beyond.

General

- Green Policy is stated and objectives are reflected very well in the functioning of the college and Hostel
- Gardens inside the college premises are found to be well maintained.
- Campus is declared plastic free and lot of initiatives and innovative actions are taken to maintain the green policy.

Water

Total water consumption -50 KL/day

- Water management & waste water management strategies are well maintained.

Water Conservation

- Water taps are converted into press type to reduce water wastage

Rain water Harvest system

Appreciable work has been carried out for harvesting the rainwater both from college buildings & hostel for charging the ground water level and usage.

Energy

Total electrical energy consumption from TNEB Grid-2,93,479 units

Installed 90KW On Grid Roof Top Solar Power plant

Lot of Energy saving activities are implemented

More number of conventional tube lights are replaced with LED lights

Waste to Wealth

- Waste papers are collected in a arranged manner and send for recycling
- Quantity of Bio compost generated- 1000 Kgs

Waste Recycle

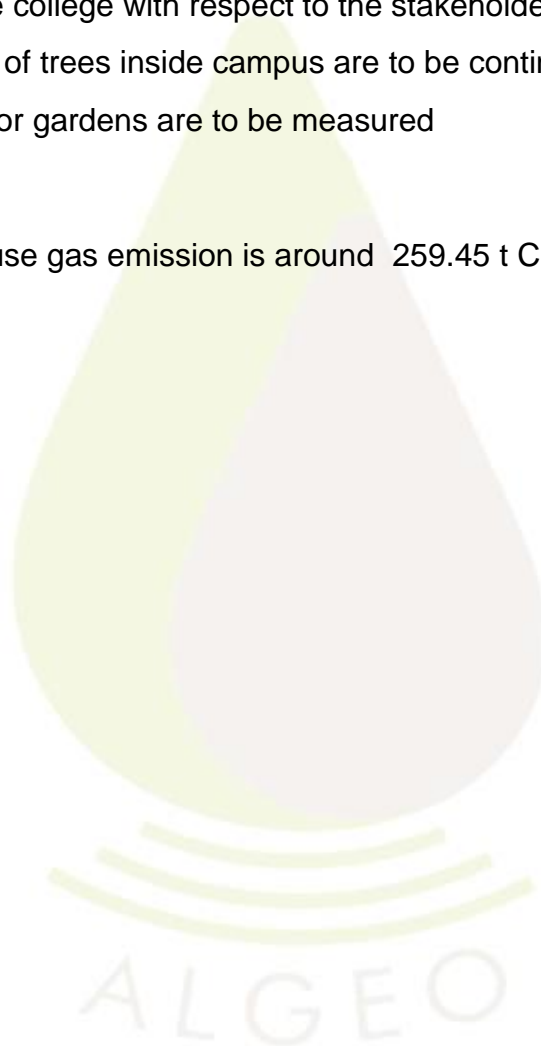
- Paper wastes are collected in a proper manner and sent for recycling
- E - wastes are collected and kept separately to send to authorised recycler
- Plastic wastes generated from packing materials are collected separately and disposed properly to recycler-

Green Campus

- Tree cover of the college with respect to the stakeholder strength is excellent
- Regular planting of trees inside campus are to be continued
- Usage of water for gardens are to be measured

Carbon Foot Print

- Yearly Greenhouse gas emission is around 259.45 t CO₂



4.3 Preparation of Action Plan

Policies referring to college's management and approach towards the use of resources need to be considered. The college green policy/environmental policy for its sustainable development to be monitored consciously.

4.4 Follow-up Action and Plans

Green Audits are exercises which generate considerable quantities of valuable management information. The time, effort and cost involved in this exercise is often considerable and in order to be able to justify this expenditure, it is important to ensure that the findings and recommendations of the audit are considered at the correct level within the organisation and that action plans and implementation programs result from the findings. Audit follow up is part of the wider process of continuous improvement.

4.5 Environmental Education

The following environmental education program may be implemented in the college before the next green auditing:-

- Training programs in Energy, Water & Waste management , Solids and e-Waste Management, Carbon footprint concepts, Awareness on Global warming, Net Zero Emission
- Increase the number of display boards on environmental awareness such as no wastage of food/water, switch off light and fan after use, plastic free campus etc.

Awareness on Carbon Consumption

- Students and Staff members are 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 due to vehicles.

4.6 Recommendations

Common Recommendations

Targets shall be fixed to achieve Net Zero Emission

Criteria Wise Recommendations

Water

- Water consumption monitoring system has to be implemented in the college campus and hostel
- More awareness programs on water conservation to be conducted.

Energy

- Remaining old Tube lights shall be replaced with LED tube lights.
- Automatic power switch off systems may be introduced in the required lighting locations and high power consuming electrical equipments.
- Conduct more awareness programs on importance of energy saving for students and staff

Waste

- Conduct exhibition of recyclable waste products
- Target for reduction in waste generation shall be planned
- Conversion of Used Cooking Oil into Bio diesel shall be given as project to students

Green Campus

- Keep continuously encouraging students for making the campus green
- Roof garden for main building shall be planned in future

Carbon footprint

- Fix a target to reduce Green House Gas emission for next Ten years