



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



ENVIRONMENTAL AUDIT - 2022-2023

AUDIT/REPORT BY



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ACKNOWLEDGEMENT

We at Alchemie Green Energy Company, Madurai are thankful to the principal for giving us the opportunity to carry out Environmental audit at Nallamuthu Gounder Mahalingam College, Pollachi -642 001. Alchemie 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 Alchemie Green Energy Company under the guidance of Mr. C. Jebaraj, B.Tech., have carried out the Environmental Audit.

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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
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Dr.P.Archanaa	M.Com., M.Phil., PGDCA., Ph.D., M.A [Hindi]	Assistant Professor & Head UG Department of Commerce with Computer Applications
Ms.S.Shanthi	M.C.A., M.Phil.,	Assistant Professor, PG Department of Computer Sciene
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Summary of Environment Audit

Environment audit of Nallamuthu Gounder Mahalingam College and its Hostel was carried by Alcheme Green Energy Company. Audit team has gone through the data related to Water and Electrical Energy, Waste generation, Waste Management, Waste Recycling and Reuse, Green Belt Development of the Institution both inside and outside the campus. The team also carried out the study of Pollution abatement measures, Rainwater harvesting, Water and Energy Conservation measures taken to reduce the pollution, noise level, green house emission and maintain Ambient Air quality

During the visit it was observed that cleanliness in the campus is well 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. The Institution strictly follows reduce, reuse and recycle method to limit energy usage and partially replace non-renewable energy sources with renewable energy resources. The environment audit report is a very powerful and valuable communications tool to use while working with various stakeholders who need to be convinced that systems and procedures in place are suited to cope with natural changes and modifications.

It is hoped that the results presented in the environment audit report will serve as a guide for educating the college community on the existing environment related practices and resource usage at the college as well as spawn new activities and innovative practices.

The audit outputs and recommendations are summarised as follows:

Noteworthy activities

- Installation of 90KW Solar Power plant
- MOU with Tharani Electronics Waste, Coimbatore for proper disposal of E waste
- Clean, Green and plastic free campus
- Rainwater Collection arrangement to open well
- Solar Water Heater system at Hostels and utilisation hot water at Hostel Kitchen

The audit outputs and recommendations are summarised as follows:

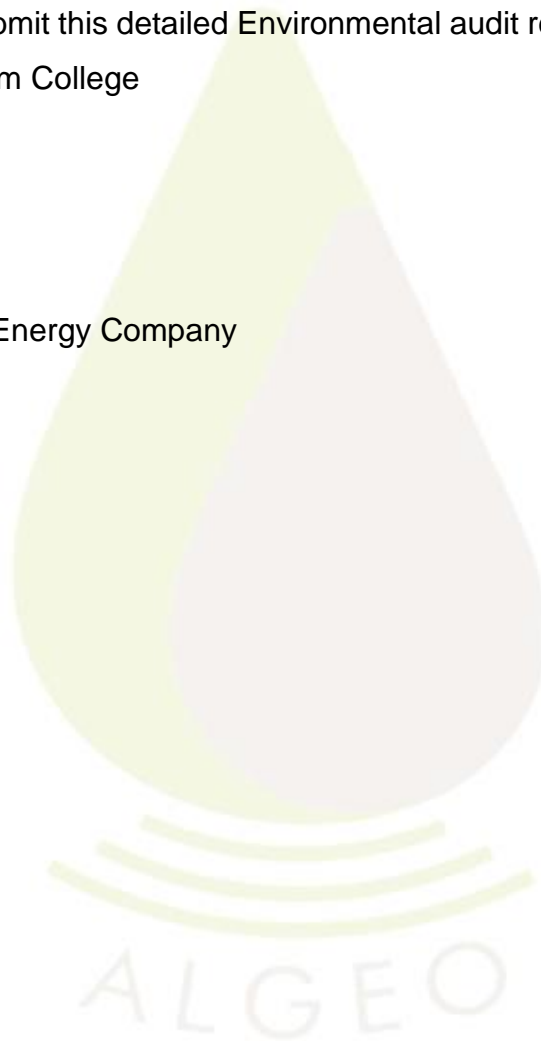
- Air pollution impact on Ambient Air quality is negligible since the quantity of fuel used for combustion in the institution is very less
- Noise levels inside the campus are within the prescribed limit.
- Lot of initiatives are taken to conserve Water and Energy by the Institution.

- Total water consumption for Nallamuthu Gounder Mahalingam College and Hostel –69 KL/Day
- Electrical Energy consumption from TNEB GRID alone –2,87,718 units
- Total Green House Gas Emission is 295.57 t CO₂e
- Green House gas reduction due to grown up trees is 22.28 t CO₂ e
- Net Green House Gas emission is 273.29 t CO₂ e

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



For Alcheme Green Energy Company
Madurai



1. Introduction

1.1 Environmental Policy

Nallamuthu Gounder Mahalingam College has well formulated Environmental Policy to guide all its activities.

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

2. WATER

2.1 Water Usage at Nallamuthu Gounder Mahalingam College

Total number of students studied during the academic year 2022-2023: 5031

Teaching & non-Teaching staff in the institution during the academic year 2022-2023:180

Total number of stake holders: 5211

Water for college and hostel

Municipal water-3,000 litres/day

Borewell water- 66,000 litres/day

Total water usage -69,000 litres/day

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

Water usage in the College- 39 KL / Day

Water usage per day per stakeholder in the college – 7.48 litres

Water usage at college

Sl. No	Place	Water usage Quantity Litres / Day
1	Drinking	10,000
2	Rest room	12,000
3	Canteen	2,000
4	Lab	2,000
5	Garden	13,000
	Total	39,000

Waste water generation in the college – 16 KL/day

2.2 Water usage at Hostel

Number of students and staff residing in the hostel in the year 2022-2023: 251

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

Water usage at Hostel - 30 KL / Day

Water usage at Hostel

Sl. No	Place	Water usage Quantity Litres / Day
1	Drinking	750
2	Cooking	1,250
3	Rest room	10,000
4	Bathing	5,000
5	Clothes washing	5,000
6	Vessel Cleaning	2,000
7	Garden	6,000
	Total	30,000

Waste water generation in the Hostel – 22 KL /day

3. Electrical Energy

3.1 TNEB Grid Electrical Energy Consumption: 2022-2023

ELECTRICAL ENERGY CONSUMPTION IN THE COLLEGE AND HOSTEL

Sl. No	PLACE	SERVICE NUMBER	UNITS CONSUMED
1	COLLEGE	03 386 007 123	248939
2	HOSTEL	03 386 005 1053	38779
	TOTAL		287718

3.2 Diesel Generator Electrical Energy Consumption: 10,860 units

Total electrical energy consumption

Sl. No	SOURCE	UNITS CONSUMED
1	TNEB	287718
2	DIESEL GENERATOR	10,860
	Total	298578

Total Electrical Energy consumption from TNEB grid and DG in the College and Hostel 2,98,578 units

Electrical Energy consumption per stakeholder per year – 57.3 units/year

4. FUEL CONSUMPTION

4.1 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 2022-2023- 275cylinders
- LPG consumption in the college during the year 2022-2023- 2 cylinder.
- Total LPG consumption during the year 2022-2023- 5,263 KGs (277 Cylinders)

5. Waste Generations and Management

5.1 Liquid and Solid Waste Generation

Waste water generation in the College - 16 KL /day

Waste water generation in the Hostel - 22 KL /day

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 50 grams. per day

e-Waste

- Less than 200 kgs/year

5.2 Waste Management

5.2.1 Liquid waste Management

- Grey water from kitchen is used for gardening

5.2.2 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 600 Kgs Bio compost is produced



5.2.3 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.

5.2.4 Used Battery Management

- Used batteries are disposed through Buy back method

5.2.5 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



தமிழ்நாடு தமில்நாடு TAMILNADU

BR 799037

2052
25/01/18

ஆர். விவேகானந்தன்,
முத்திரைத்தாள் விற்பனையாளர்,
உரிமம் எண்: 12096 /ஆ.1,2010/9
T. கோட்டாம்பட்டி, பெள்ளச்சி, தமிழ்நாடு

Principal
NGM COLLEGE
POLLACHI

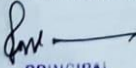


E-WASTE DISPOSAL MOU AGREEMENT

This E-waste Disposal 'MOU Agreement' is made on First day of February in the year Two Thousand Eighteen (01/02/2018), by and between Nallamuthu Gounder Mahalingam College (NGMC) located at 90, Palghat Road, Pollachi - 642001 which expression shall unless repugnant to the context include its legal/authorised representatives, administrators, executors, nominees, successors and permitted assigns) of the first party.

AND

Tharani Electronics Waste (TEW) having its office at 313/27, Alagappa Chettiyar Road, Gandhipuram, Coimbatore - 641012, Tamil Nadu, INDIA ,which expression shall unless repugnant to the context include its legal/authorized representatives, administrators, executors, nominees, successors and permitted assigns) of the second party.

1) 
PRINCIPAL
N & M COLLEGE, POLLACHI

2) 
THARANI ELECTRONIC WASTE
313/27, Alagappa Chettiyar Road,
Gandhipuram,
Coimbatore - 641 012.

5.2.6 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.

6. Pollution abatement measures

6.1 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.

6.2 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.

6.3 Waste Reuse

- Reuse one sided paper
- Reuse Envelopes

6.4 Waste to wealth

- Dry leaves are converted into bio fertilizer

6.5 Water Conservation initiatives

- Water taps are changed to push type to reduce the wastage of water
- Periodical preventive maintenance is carried out to avoid leakages

6.6 Energy conservation activities 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 are being carried out
- The fans, lights, air-conditioners and other electronic and electrical equipment's 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.

7. Greenbelt Development

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 1061 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.



GREEN BELT DEVELOPMENT

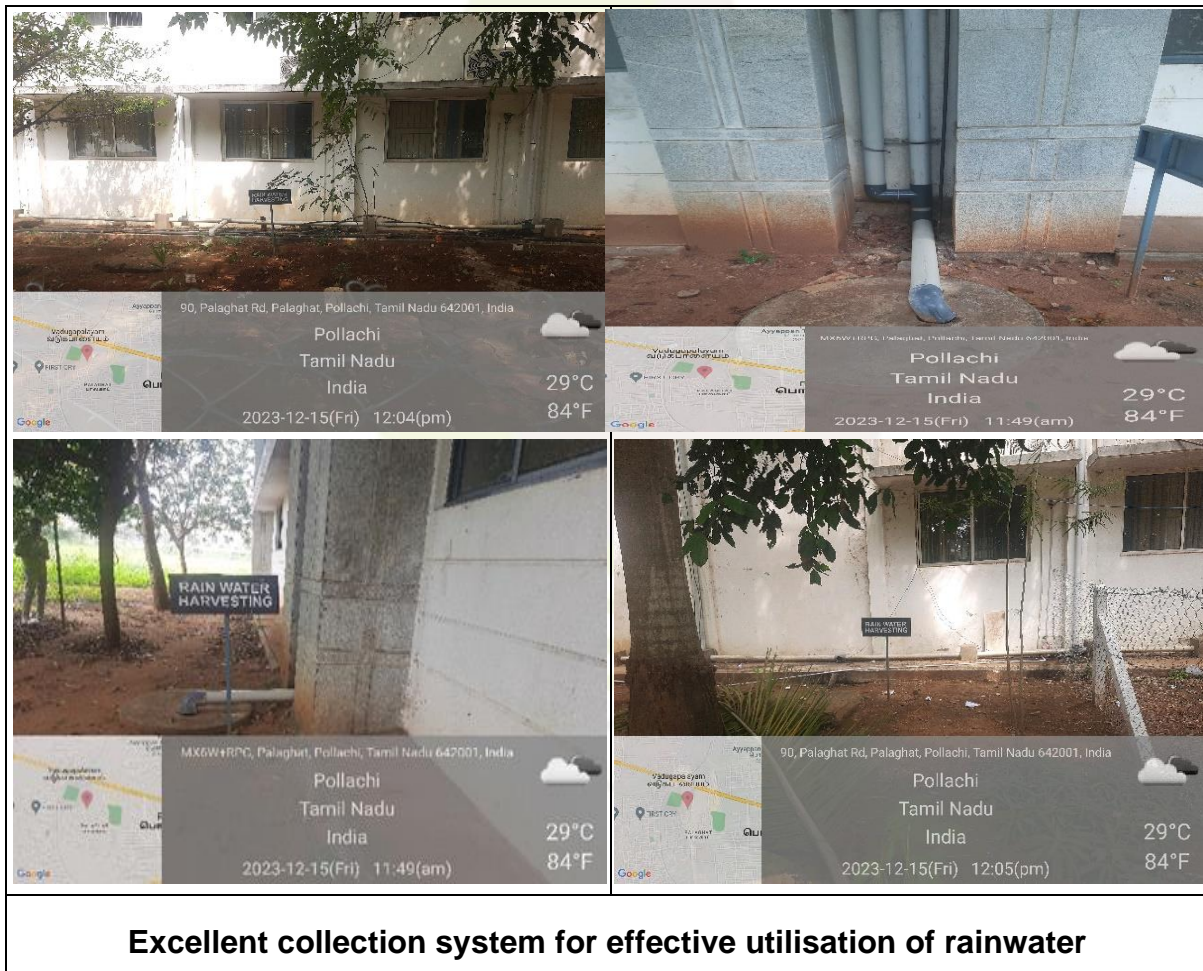
8.Rainwater Harvesting

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 is collected through Rainwater collection channel and directed to open well



9. AMBIENT AIR

9.1 Green House Gas Emission

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 =18

No of two wheelers used by both students and staff =701

No of College working days during the year 2022-2023-180 days

No of days Hostel was occupied with students in the year 2022-2023-252 days

Fuel (Petrol)consumption by two wheelers = No of days * No of vehicles*12/60	25,236	Lits
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Fuel (Petrol)consumption by four wheelers = No of days * No of vehicles*16/20	2,592	Lits
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Total quantity of petrol consumed by both two wheelers and four wheelers	27,828	Lits
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Diesel consumed by DG sets during the year 2022-2023	3,620	Lits
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Total Diesel consumption during the year 2022-2023	2532	Lits
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LPG consumption in the college	38	kgs
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LPG consumption in hostel mess and canteen	5,225	kgs
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Total LPG consumption	5,263	KGS
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Total Power consumed in the COLLEGE and HOSTEL in the year 2022-2023	2,87,718	units
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GHG EMISSION

Green House Gas emission due to petrol	65,674	Kge CO2
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Green House Gas emission due to diesel	9,665	Kge CO2
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Green House Gas emission due to LPG	15,947	Kge CO2
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Green House Gas emission due to Grid power	2,04,279	Kge CO2
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Total GHG emission per year	2,95,566	Kge CO2
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Total GHG emission per year	295.57	t CO2 eq
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GHG Captured by tress

Fully grown-up trees inside the campus	1,061	trees
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Greenhouse gas captured by trees	22.28	t CO2 eq
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Net Green House Gas Emission per year	273.29	t CO2 eq
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GHG AVOIDED due to usage of Renewable Energy

Solar power generation from Solar power plant	10,167	units
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Solar power generation for street lights	438	units
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Total solar energy used	10,605	units
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Greenhouse gas emission avoided due to solar power generation	7,530	KGs
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Greenhouse gas emission avoided due to solar power generation	7.53	t CO2 eq
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Total Solar Water Heater installed	4100	LPD
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Greenhouse gas emission avoided due to Solar Water Heater	30.57	t CO2 eq
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Total GHG avoided by usage of Renewable Energy	38.10	t CO2 eq
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9.2 Ambient Air Quality

Flue gas emission sources

- LPG combustion at hostel, canteen and labs
- Diesel generator at College and Hostel

Fuel consumption per year

- LPG – 5,263 Kgs
- Diesel for generator – 3,620 litres

Fuel consumption per day

- College workings days -180
- Hostel occupied with students -252 days
- Average LPG consumption per day- 20.88 kgs
- Average diesel consumption per day-14.36 litres

Combustion of LPG is NOT CONTINUOUS process

DIESEL Generator will run only when TNEB grid power fails

Considering the above situation, the quantity of flue gas emission and the impact on ambient air quality from the above combustions are negligible



9.3 Noise level

Noise level inside the campus

Sl. No	Location	Max value in dB	Average Value in dB
1	Near Main Entrance	70.6	66.4
2	Class room	57.2	53.1
3	Library	51.3	46.7
4	Near DG	59.9	53.9
5	Hostel	59.0	53.8
6	Office	56.9	55.3

- Diesel Generators (DG) sets do not run on a continuous basis. Only during power failure, DG sets are operated during the working hours of the College.
- Generally, Power failure occurs for a very short time period.
- During planned shutdown hours, DGs run continuously based on the load
- Noise disturbance due to DG set is negligible.

10. Audit Findings & Recommendations

Noteworthy activities

- Utilisation of Green Energy from 90KW Solar Power Plant
- MOU with Tharani Electronics Waste, Coimbatore for proper disposal of E waste
- Clean, Green and plastic free campus
- Optimum utilisation of Water
- Hot water from Solar water heaters is utilised in the Hostel Kitchen to reduce the LPG consumption

Findings

- Air pollution impact on Ambient Air quality is negligible since the quantity of fuel used for combustion in the institution is very less
- Noise levels inside the campus are within the prescribed limit.
- Lot of initiatives are taken to conserve Water and Energy by the Institution.
- Total water consumption for Nallamuthu Gounder Mahalingam College and Hostel –69KL/Day
- Electrical Energy consumption from TNEB GRID alone –2,87,718 units
- Total Green House Gas Emission is 295.57 t CO₂e
- Green House gas reduction due to grown up trees is 22.28 t CO₂ e
- Net Green House Gas emission is 273.29 t CO₂ e
- Tree cover of the college with respect to the stakeholder strength is excellent
- Regular planting of trees inside campus are to be continued
- Water usage per day per stakeholder in the college 7.48 litres.
- Water consumption per day per stakeholder in the hostel -119.5 litres
- Electrical Energy consumption per stakeholder per year – 57.3 units/year

Recommendations

- Waste water generated from college rest room shall be separated as grey and septic water and grey water shall be used for garden or reused for toilet flushing after treatment
- Training programs in Water & Waste management, Solids and e-Waste Management, Carbon footprint concepts, Awareness on Global warming & Climate change, E -vehicle usage and Alternative Fuel usage shall be given

- Increase the number of display boards on environmental awareness such as no wastage of food, switch off light and fan after use etc

