ENVIRONMENT AUDIT REPORT

2022-2023

VIRUDHUNAGAR HINDU NADARS SENTHIKUMARANADAR COLLEGE

3/151-1, College Road,
Virudhunagar,
Tamil Nadu- 626 001.

TJ Solutions
4/101, Raja Sir Muthiah Nagar,
Bye-pass road, Ellis Nagar,
Madurai-625 016

TJ SOLUTIONS

AUDIT CERTIFICATE

PRESENTED TO

VIRUDHUNAGAR HINDU NADARS SENTHIKUMARA NADAR COLLEGE
VIRUDHUNAGAR

Has been assessed by TJ Solutions for the comprehensive study of the environmental impact on institutional working framework to fulfill the requirement of

ENVIRONMENT AUDIT

2022-2023

The Environment initiatives carried out by the institution have been verified on the report submitted and found to be satisfactory.

The effort taken by the management and faculty towards the care of Environment, Water conservation,Waste management, recycling and reuse are appreciated.

Auditor signature

Dr.S.Balraj,M.E.,Ph.D-(EA-15051)

Dr.S.BALRAJ, M.E.,Ph.D.,
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ACKNOWLEDGEMENT

We at TJ Solutions, Madurai are thankful to the Principal for giving us the opportunity to carry out Environment audit of VIRUDHUNAGAR HINDU NADARS SENTHIKUMARA NADAR COLLEGE, Virudhunagar - 626 001, Tamil Nadu, India. TJ Solutions 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 TJ Solutions under the guidance of Mr. S. Balraj M.E.,Ph.D., have carried out the Environment Audit.

Name	Qualifications	Certification Number
Mr.S.Balraj	M.E.,Ph.D.,Energy auditor	EA-15051
Mr. N. Tamil selvan	BSc.,	ISO Lead Auditor
Mrs.Tamil selva parvathi	MSc.,DTC.,PGDESD.,	Environmentalist
Mr. R.Manikandan	DEEE	Electrical Data Analyst
Er. A .Rajendran	B.E,	Electrical Engineer
Er. P.Deleepan	B.E	Assistant Engineer (Electrical / Energy)

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Summary of Environment Audit

Environment audit of VIRUDHUNAGAR HINDU NADARS SENTHIKUMARA NADAR COLLEGE and its HOSTEL was carried out by TJ solutions. 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 Renewable energy utilization, Pollution abatement measures, Rainwater harvesting, Water and Energy Conservation measures taken to reduce the pollution, noise level, Greenhouse emission and maintain Ambient Air quality

During the visit it is 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 the reduce, reuse and recycle method to limit energy usage and 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 summarized as follows:

- Total water consumption for VIRUDHUNAGAR HINDU NADARS SENTHIKUMARA NADAR COLLEGE and Hostel – 81 KL/Day
- Electrical Energy consumption from TNEB GRID alone - 231354 units
- Total Electrical Energy consumption -2273088 units
- Renewable energy from Solar PV power plants- 16461.5 units
- Energy from Wind Mill plant 9672.5 units
- Total Renewable energy utilization- 30717.5 units (equivalents)
- GreenHouse Gas Emission -946.8 t CO_2e

- 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.
- Green Belt Development, outside the campus, by the Institution, in coordination with external agencies is highly appreciable.
- Excellent waste management system is followed by the Institution. Very good initiative is taken by the institution to reduce paper consumption, collection of waste paper and disposal for recycling.
- Wastewater treatment plants can be constructed in future plans.
- Food waste is converted into biogas in the biogas plant and other degradable bio-waste is converted into bio-compost and bio-fertilizer.
- Rainwater collection system is covered for 35000 sqft area and the harvested water is used to recharge the well.
- Lot of initiatives are taken to conserve Water and Energy by the Institution.
- Flow meters are to be provided for better water management
- Waste water management has to be improved to reduce the water consumption.
- Steps to be taken for maximizing the solar power harvesting.

We are happy to submit this detailed environment audit report to the VIRUDHUNAGAR HINDU NADARS SENTHIKUMARANADAR COLLEGE

TJ Solutions
Madurai

Energy Auditor

TJ Solutions ★ Madurai-10 ★

1. Introduction

Environmental Policy

VIRUDHUNAGAR HINDU NADARS SENTHIKUMARANADAR COLLEGE has well formulated Environmental Policy to guide all its activities.

The main objectives are as follows:

- To Reduce, Reuse, and Recycle the resources consumed by our institute
- To achieve sound environmental practices across our entire operation.
- To minimize our waste and reduce our water consumption wherever possible.
- To invite our stakeholders to participate in our efforts to protect the environment.
- To create awareness among our employees and train them to meet our objectives.
- To review our actions on the environment on a regular basis and compare our performance with our policies, objectives and targets.

The Institution vouchsafes:

- Identifying the environmental impacts and aspects of our operations and ensuring that we meet our compliance obligations.
- Establishing environment programs that are consistent with our commitment to the continual improvement of the environment management system.
- Compliance with applicable environmental policies and prevention of pollution by applying the best available practice.

2. WATER

2.1 Water usage at VIRUDHUNAGAR HINDU NADARS SENTHIKUMARA NADAR COLLEGE

Total number of students studied during the academic year 2022-2023: 3539

Teaching & non-Teaching staff in the institution during the academic year 2022-2023: 313

Total number of stakeholders: 3852

Number of college working days: 210

Sl. No	Place	Water usage Quantity Litres / Day
1	Laboratories	2,000
2	Drinking	4,000
3	Garden	25,000
4	Rest room	15,000
5	Cleaning	2,000
6	Construction	10,000
7	Canteen	1,000
	Total	**59,000**

Water usage in the Virudhunagar Hindu Nadars SenthikumaraNadar College

- 59 KL / Day

Water usage per day per stakeholder in the college -15.3 litres

Waste water generation in the college - 20 KL/day

2.2 Water usage at Hostel

Number of students and staff residing in the hostel during the academic year 2022- 2023: 417

Number of day's hostel was occupied with the students and staffs- 330

Sl. No	Place	Water usage Quantity Litres / Day
1	Cooking	5,000
2	Drinking	1000
3	Garden	1,000
4	Toilet ,Bath room and clothes washing	10000
5	Vessel Cleaning	5,000
	Total	22,000

Water usage at Hostel - 22 KL / Day

Water consumption per day per stakeholder in the hostel – 52.7 litres

Waste water generation in the Hostel – 16 KL /day

3. Electrical Energy

3.1 TNEB Grid Electrical Energy Consumption: 2022-2023

Sl. No	Service No	Name	2022-2023	
			Unit consumed	Bill Amount (Rs)
1	6	Navamara Kinaru	7181	1,72,957
2	13	Science Block western Wing	10490	87,525
3	16	Dharmarajan - Build	5170	44,415
4	19	Arts Block Eastern wing	13500	1,12,720
5	20	NRSB Cycle Shed	320	11,923
6	27	Science Block North –Physics	7350	71,919
7	29	Gymnasium Building	190	8,258
8	31	Auditorium	5325	52,982
9	34	V.N.M.A Hall GJB	7640	68,032
10	38	Office	29600	3,19,681
11	40	Pavilion Builiding	3870	30,960
12	41	Old Canteen - Pandi	20	3,158
13	161	Engg. Hostel Mess	00	720
14	164	UGC Maths Building	4130	36,761
15	165	Old Canteen - N.S.S. Girls Unit Room	1289	13,653
16	167	Library Building	8082	67,147
17	171	SSAM Ladies Hostel	00	7,505
18	175	Hobby WorkShop - NCC	28940	2,25,727
19	191	Peria Vallikulam Pump (Bore well II)	5371	49,836
20	213	Power Supply Aathi P. Thangamani Build.	16230	1,46,342
21	217	Main Well Behind Library	15350	1,22,100
22	223	S.S.A. Hostel	2350	24,832

3.2 Diesel Generator Electrical Energy Consumption: 2022-2023

Sl. No	Location	Unit Consumption	Amount (Rs)	Diesel Consumption (L)	Units/Litre
1	VHNSNC	15600	494000	5200	3.0

3.3 Solar power Electric energy consumption 2022-2023

Sl. No	Solar Capacity KW	Solar Power Generation Units
1	11	16461.5

3.4 WindMill power Electric energy consumption 2022-2023

SL.No	Wind Mill Capacity KW	WindMill Generation Units
1	**1.8 KW**	**9672.5**

Total Electrical Energy consumption in the College & Hostel -273088 units
Electrical Energy consumption per stakeholder per year - 70.8 units.

4. FUEL CONSUMPTION

4.1 LPG

For cooking and LAB, LPG gas is used in the hostel ,College and canteen

LP GAS usage in the year 2022-2023

Hostel 900

College= 20

Total 920*19= 17480 Kg (1 Commercial cylinder= 19Kg)

4.2 BIOGAS

Biogas plant installed generates biogas from the Hostel food waste.

Biogas generation – 2640 M^3

4.3 BIOMASS

Biomass is used for cooking in the hostel.

Biomass is used in the form of Bio Briquette
Biomass consumption - 6000 Kg.

5. Waste Generations and Management

Waste Generation

Liquid waste

Waste water generation in the college - 20 KL /day

Waste water generation in the Hostel – 16 KL /day

Solid Waste

Food waste-20 Kg /day

Plastic Waste-2kg

Paper waste-3000 Kg

Waste Management

5.1 Liquid waste Management

- Laboratory wastewater is being sent through the public sewer drainage system after proper dilution as per Material Safety Data Sheet norms.

- Waste water generated from washing, urinals, and bathrooms are sent through the public sewer drainage system.

5.2 Solid waste Management

Each Class Room is provided with color coded bins with instructions to drop paper waste and non -bio degradable waste.

Bio-degradable Waste Management

- ❖ Separate dustbins are kept to collect the waste food and used plates.
- ❖ Biodegradable and non-biodegradable waste are collected in separate bins provided.
- ❖ Food waste from Hostel & canteen is fed to the biogas plant.
- ❖ Vegetable waste from Hostel & canteen are sent to the bio composing unit.
- ❖ Withered dry leaves are collected and converted into Bio-manure.

Plastic Waste Management

- The college has been declared as a 'Plastic Free' zone.
- Sale of plastic files, folders and other plastic stationery items in the college store is banned.
- All the stakeholders and the faculty 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.
- Use of polythene bags is avoided.
- Board files and jute folders are provided to the participants during seminars and other events.
- Plastic waste that comes in through lab equipment's package, empty chemical containers etc. are collected separately and disposed periodically for recycling.

Other Solid Waste Management

- Solid wastes generated from damaged furniture are sent to waste wood collectors.
- Glass wastes are disposed of periodically through the municipal waste collection system.
- Napkins are burnt in the incinerators

5.3 Used Battery Management

- Used batteries are disposed through Buy back method and E Waste authorized collector

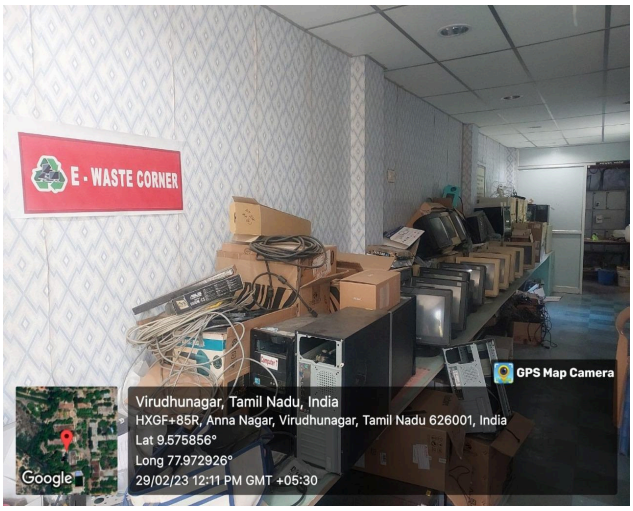
5.4 E-Waste Management

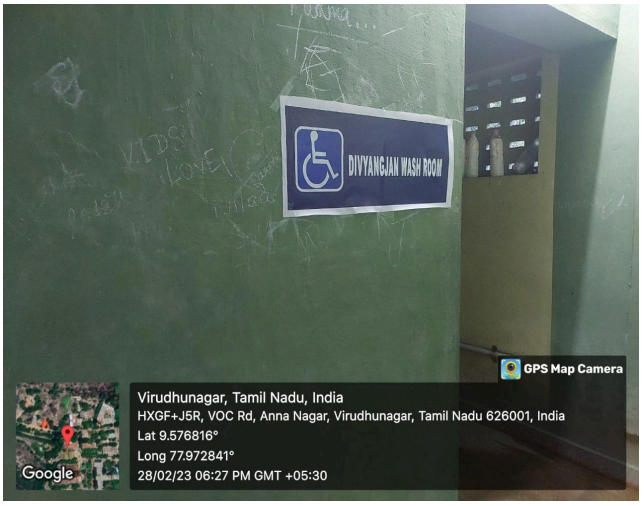
- E-waste is properly collected and kept in the E-waste collection point for disposal through authorized e-waste recyclers.

- Arrange for MOU with E waste collector to dispose of the waste.
- All Computers and electronic machinery is purchased under Buy-Back agreement

5.5 Hazardous Waste Management

- Green Chemistry is followed in the lab.
- To get rid of toxic fumes in the Chemistry laboratory, a separate fume hood and industrial exhaust fans are installed.





6. Pollution abatement measures

6.1 Waste Reduction

❖ Micro scale laboratory is implemented in the Chemistry Department to reduce the usage of chemicals.

❖ Students are instructed not to waste paper while writing examinations.

❖ In order to reduce the use of paper the following initiative were taken

- Online Admission Process – Printing of applications reduced & submission of applications through admission portal.
- Online voting system in Students Forum Election.
- Governance through ERP- essential data made available in the software as e-reports thus reducing the use of paper.
- All inter department communications are through intranet
- Documents are maintained in ERP
- Printing in both sides of paper
- Usage of ethical paper & bleached paper
- ESE results are sent to the departments as soft copy with e-signature
- Digital mode (mail or message) used for all communications – Internal & external
- Examination seating arrangements intimated to students through SMS
- Online exams are conducted to reduce paper usage.
- For Bank correspondences -Photo copies are replaced by scanned copies where hard copy is not necessary.
- Printing of vouchers is minimized.
- All purchase orders are scanned and sent through mail instead of sending hard copies by courier.
- Vendors are asked to forward their catalogs and pamphlets through mail.
- Sending soft copies of the documents/letters, when hard copies are not necessary
- Promoting paper pencils instead of wooden pencils.

6.2 Waste Reuse

- Reuse one sided paper
- Reuse Envelopes
- Old cycles and tyres are used for pottery purpose

6.3 Waste to wealth

Inside the campus

- Biogas generation from food waste through Biogas plant 8 M^3 per day
- Dry leaves are converted into bio fertilizer
- Waste papers are collected in an arranged manner and sent for recycling

6.4 Water Conservation initiatives

- Water purifiers are provided in hostels and colleges for safe drinking water.
- Press type water taps are installed to reduce the wastage of water.
- No showers in the bathroom.
- Installed water efficient bathroom fittings.
- Water sprinklers are used in the garden.

6.5 Energy conservation

In the year 2022-2023, old electrical light fittings 105 nos. were replaced with new LED light fittings

Energy saved is 3090 units

- The fans, lights, air-conditioners and other electronic and electrical equipment are switched off when not in use.
- Computers are switched to sleep mode or hibernate mode automatically when not in use
- Electrical equipment like CROs, Oscillators, Sodium lamps are switched off in the laboratory when the students complete their observations.
- At the end of every practical session, Computer monitors and UPS are switched off
- 5 Star rating Energy efficient electrical equipment has been installed.

- Automatic power(sensor based) switch off systems is installed and may be introduced in required areas

7. Greenbelt Development

- The campus is lush green with gardens, lawns and plants wherever there is open space
- Total number of trees in the campus is 4758 .
- The eco-friendly ambience of the campus is a noteworthy feature of the college.
- Green belt is developed in 10 Acre.
- The list of trees and the arrival of new saplings are recorded every year.
- All the plant specimens are identified and documented.

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 campus protects age-old trees in addition to several new trees and plants planted.
- The Eco watch club, N.S.S, ECO club, Nature club, Rotaract club, RRC, of the college take special care to keep the campus neat and green.
- Tree plantation programmes are organised regularly in co-ordination with the external environmental organisations.
- Environmental awareness rallies are conducted regularly to spread the message of environment preservation.

List of trees

S.No	Tamil name	Common name	Binomial name
1	Thennai	Coconut tree	*Cocos nucifera*
2	Maa	Mango	*Mangifera indica*
3	Koiyaa	Guava	*Psidium guajava*
4	Yelumichai	Lemon	*Citrus limonum*
5	Maadhulai	Pomegranate	*Punica granatum*
6	Seetha	Sugar apple	*Annona squamosa*
7	Aaranju	Sweet orange	*Citrus sinensis*
8	Sapota	Sapota	*Manilkara zapota*
9	Nellikaai	Gooseberry	*Phyllanthus emblica*
10	Pappali	Papaya	*Carica papaya*
11	Santhanam	Sandal	*Santalum album*
12	Semmaram	Red sander	*Pterocarpus santalinus*
13	Thaekku	Teak	*Tectona grandis*
14	Marudha maram	Arjuna tree	*Terminalia elliptica*
15	Naaval	Jamun tree	*Syzygium cumini*
16	Punnai	Tamanu	*Calophyllum inophyllum*
17	Pungai	Indian beach tree	*Pongamia pinnata*
18	Vembu	Neem	*Azadirachta indica*
19	Sorkkamaram	Paradise tree	*Simarouba glauca*
20	Manjal konrai	Ironwood	*Cassia siamea*
21	Sivapu konrai	Gulmohar tree	*Deloni regia*
22	Sarak konrai	Golden shower tree	*Cassia fistula*
23	Mahilam	Bullet wood tree	*Mimusops elengi*
24	Ilavam panju	Silk cotton tree	*Ceiba pentandra*
25	Naatu Athi	Fig tree	*Ficus carica*
26	Mahogany	Honduran tree	*Swietenia macrophylla*
27	Iluppai	Butter tree	*Madhuca longifolia*
28	Palaa	Jack tree	*Artocarpus heterophyllus*
29	Vaalai	Banana tree	*Musa paradisiaca*

30	Moongil	Bamboo	*Bambusa species*
31	Marudhani	Henna	*Lawsonia inermis*
32	Puliyamaram	Tamarind tree	*Tamarindus indica*
33	Naarthangai	Citron	*Citrus medica*
34	Vaadham	Almond tree	*Terminalia catappa*
35	Nettilingam	False Ashoka	*Polyalthia Longifolia*
36	Aranelli	Malay gooseberry	*Phyllanthus acidus*
37	Arali	Oleander	*Nerium oleander*
38	Thanga arali	Yellow bells	*Tecoma stans*
39	Mantharai	Purple bauhinia	*Bauhinia purpurea*
40	Plumeria	White champa	*Plumeria alba*
41	Sembaruthi	China rose	*Hibiscus sinensus rosa*
42	Mini idli poo	Mini Ixora	*Ixora chinensis*
43	Poovarasu	Portia tree	*Thespesia populnea*
44	Munthiri	Cashew	*Anacardium occidentale*
45	Achi Naruvili	Geiger tree	*Cordia sebestena*
46	Mara malligai (Panneer)	Tree Jasmine	*Millingtonia hortensis*
47	Crotons	Croton	*Codiaeum variegatum*
48	Roja	Rose	*Rosa indica*
49	Texas silver	Purple sage	*Leucophyllum frutescens*
50	Venkai	Indian kino	*Pterocarpus marsupium*
51	Madu panai	Queen sage	*Cycas circinalis*
52	Thuja	Thuja	*Thuja occidentalis*
53	Thaen palam	Malaysian cherry	*Muntingia calabura*
54	Aalamaram	Banyan tree	*Ficus benghalensis*
55	Arasamaram	Peepal Tree	*Ficus religiosa*
56	Bignonia	Bignonia	*Bignonia species*

7.1 Greenbelt development on the campus inside

Involvement of students in the Green activities

- Students are involved in NSS, ECO club, Green club.
- Students of Botany ,ECO club and Green club maintain a Vegetable garden, Fruit garden, Herbal garden inside the campus.
- Vermicompost preparation is practiced by the student.
- Students are involved in tree sapling plantation, watering, donating seedlings,potting weeding and other maintenance.
- Students are given training in environmental related issues in addition to awareness programs.

7.2 Greenbelt development on the campus outside

- Students involved in cleaning campus and planting saplings in the village.
- NSS students are involved in cleaning and tree plantation activity at nearby villages.

7.3 Awareness Programmes-Campus inside

- Poster/ painting competitions are conducted for the students in order to alert the students of their duty to maintain a green and clean campus.
- Rainwater harvesting.
- Timely disposal of wastes from the campus.
- Segregation of biodegradable and non-biodegradable wastes.
- Plastic free zone.
- Issues and impact of plastics usage in the environment.
- "Reduce, Reuse, Refuse & Rethink: 4 Rs in Waste Paper Management on Campus"
- Solid Waste Management.

7.4 Awareness programmes- Outside campus

- On "World Bicycle Day"NSS students participated in a Bicycle rally.

8. Renewable Energy

8.1 Solar PV Power Plants

Solar Power Plant Details		
VHNSN College		
Name	**Solar Panel Capacity**	**Grid Type**
VHNSNCollege	11 KW	ON Grid

8.2 Solar Water Heater

Solar water heater capacity of 600 LPD installed in the college

8.3 Solar Street Light

40 W Solar Street lights- 30 nos

Solar power generation and utilized from all the street lights-5256 units

Renewable Energy Generation

Renewable Energy- Solar PV Power plants VHNSNC

Solar Power plant installed at college -11 KW.

Renewable Energy- Solar Thermal Water Heaters

Solar water heater installed capacity at the hostel - 600 LPD
Grid electrical energy(equivalent) saved due to Solar water heaters-9000 units/year.

Renewable Energy- Solar Street Light

Solar street light installed at the campus -40 W*30= 1200W
Grid electrical energy(equivalent) saved due to Solar street light-5256 units/year.

Renewable energy- Biogas

Biogas generation from the food waste during the year 2022-2023 is8 M^3

Renewable energy- Biomass

Biomass consumption during the year 2022-2023 in the hostel -6000 Kg

Total renewable energy usage in college and hostel together during the year 2022- 2023 is 53954 units

Renewable Energy usage- Breakup

Sl. No.	**Renewable Energy**	**Electrical Energy/Equivalent Electrical Energy**
1	Solar Photovoltaic	16461.5 units- Electrical Energy
2	Solar Thermal	9000 units- Equivalent Electrical Energy
3	Solar street light	5256 units- Equivalent Electrical Energy
4	Biogas	1584 units- Equivalent Electrical Energy
5	Biomass	12000 units- Equivalent Electrical Energy
6	Wind Mill	9672.5 Units- Electrical Energy
	Total	53954 units

9. Rainwater Harvesting

The college has taken maximum steps to harvest rainwater inside the college campus as well as in the hostel campus

- Rainwater collected is used for domestic purposes.
- Rainwater harvesting is used to recharge ground.
- Total rainwater harvest area covered- 35,000 sqft
- No. of rainwater harvest system established in the college-2(well)+1(pond)
- No. of bore well used for recharge by Rainwater -3 well
- Collected rainwater is used for LAB after deionization.

10. AMBIENT AIR

10.1 GreenHouse Gas Emission

VHNSN COLLEGE provides convenient and flexible transport facilities for the students.

- Diesel consumption by 2 college buses per year-5200 L
- Diesel consumption by DG sets in the college/hostel – 5200 L
- Total Diesel Consumption- 10,400 L
- Radius of Viruthunagar town-25 KM
- Average distance travelled by staff and students per day from home to College and back to home -15 KM
- No of four wheelers being used by students and staff -6
- No of two wheelers being used by students and staff -524
- College working days during the year 2022-2032: 210 days
- Average Fuel efficiency of four wheelers – 20 KM/ L
- Average Fuel efficiency of two wheelers -60 KM/ L
- Average Petrol consumption by four wheelers -945 L
- Average Petrol consumption by two wheelers-27510 L
- Total Petrol consumption-28455 L
- Total LPG consumption(Hostel & canteen & College) per year- 17480 Kg
- Total electrical power consumed from Grid- 231354 units
- Biomass consumption-6000 Kg

● Green House Gas emission due to diesel	27768 Kg CO_2 e
● Green House Gas emission due to petrol	671538 Kg CO_2 e
● Green House Gas emission due to LPG	52964.4 Kg CO_2 e
● Green House Gas emission due to Grid power	187396.74 Kg CO_2 e
● Green House Gas emission due to Biomass	7200 Kg CO_2 e
● Total GHG emission	946867.14 Kg CO_2 e
	946.8 t CO_2 e

10.2 Ambient Air Quality

Flue gas emission sources

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

Fuel consumption per year

- LPG – 17480 Kg
- BIOGAS-1584 M^3
- BIOMASS- 6000 Kg
- Diesel at Hostel/college-5200 litres
- LPG consumption per day-4.5 Kg
- BIOGAS consumption per day- 8 M^3
- BIOMASS consumption per day-18 Kg
- Diesel generators are not running on a daily basis.
- LPG,BIOGAS and BIOMASS combustion are not continuous on any day

The quantity of flue gas emission and the impact on ambient air quality from the above combustion are negligible.

10.3 Air Quality Monitoring

- To monitor the Ambient Air Quality, one Continuous Ambient Air Quality Monitoring Station (CAAQMS) is placed at TNPCB (Tamil Nadu Pollution Control Board) office Virudhunagar
- The distance between **Virudhunagar Hindu Nadars SenthikumaraNadar College** college and TNPCB is 4 KM.
- The results are tabulated

Sl.no	District (location)	So2	No2	CO	PM2.5	PM10	AQI Index	Prominent pollutant
1	Virudhunagar	30	15	1	26	30	GOOD	So2

10.4 Noise level

Noise level inside the campus

Sl. No	Location	Max value in dB	Average Value in dB
1	Near library	60.0	47.1
2	Administrative building	65.1	56.2
3	Hostel	79.0	74.0
4	Near Auditorium	65.8	52.8
5	Near Main Entrance	85.1	72.1
6	Near Generator Room	66.0	59.2

- 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.
- All buildings are far away from the National Highway. Noise disturbance from the national highway is not appreciable.

11. Audit Findings & Recommendations Findings

- Total water consumption for VIRUDHUNAGAR HINDU NADARS SENTHIKUMARA NADAR COLLEGE and Hostel is 81 KL/Day.
- Water usage per day per stakeholder in the college-15.3 litres.
- Water consumption per day per stakeholder in the hostel -52.7 litres
- Electrical Energy consumption from TNEB GRID alone is 231354 units.
- Total Electrical Energy consumption is 273088 units.
- Renewable energy from Solar PV power plants- 16461.5 units.
- Total Renewable energy utilization- 53974 units (equivalents).
- GreenHouse Gas Emission -946.8 t CO2 e

- 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 well within the limit.
- Excellent waste management system is followed by the Institution. Very good initiative is taken by the Institution to reduce paper consumption, collection of waste paper and disposal to recyclers.
- Food waste is converted into Biogas in the Biogas plant and other degradable Bio-waste are converted into Bio compost and Bio fertilizer
- Rainwater collection system is covered for 35000 sqft area and the harvested water is used to recharge the well and ground by pond.
- Lot of initiatives are taken to conserve water and Energy by the Institution.
- Flow meters are to be provided at source to know the water consumption and for better water management.
- Waste water management has to be improved to reduce the water consumption.
- Flow meter for biogas plant to be provided to know the exact quantity of biogas generation and to utilize the plant maximum.
- ETP plant may be constructed for waste water treatment.(Chemistry Lab,)
- More green buildings can be constructed
- STP plant may be constructed
- More capacity of solar power plants may be installed to reduce energy drawn from TNEB Grid.