Vivekananda College
(University of Delhi)
ACCREDITED BY NAAC WITH 'A+' GRADE

SUPPORTINGDOCUMENTSFOR
7.16

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The external Audit has been done in March 2022 so we did the internal audit and see the what are the changes in data last 8 months that is updated.

Environmental Audit Report 2022-23 Vivekananda College University of Delhi

Green Audit

A plant audit was done by the college staff to know the number and location of plants in the college campus. Some teachers and gardeners of the institution participated in this audit programme. The audit result suggested that the campus has approximately 46 different species of trees. The number of different species is different and they vary from 1 to 35.China palm has been observed with a maximum number of trees (35) followed by Ashoka tree (30). Total 312 trees were counted in the campus of the institution. The current status of each species has been shown in Table.1.

Figure1. Plants diversity in Vivekananda College campus

GENERAL INFORMATION

1. Does any Green Audit conducted earlier?

No, this is the first external audit organized by the College

2. What is the total strength (people count) of the Institute?

Students

Male: 0 Female: 2463 Total: 2463

Teachers (including guest faculty)

Male: 24 Female: 67 Total: 91

Non-Teaching Staff

3. What is the total number of working days of your campus in a year?

There are one hundred eighty working days in a year.

4. Where is the campus located?

The campus is located in Vivek Vihar, Delhi, 110095

5. Which of the following are available in your institute?

Garden area	*Available*
Playground	*Available*
Kitchen	*Available*
Toilets	*Available*
Garbage Or Waste Store Yard	*Available*
Laboratory	*Available*
Canteen	*Available*

6. Which of the following are found near your institute?

Municipal dump yard	*Not in vicinity of institute*
Garbage heap	*No Garbage heaps*
Public convenience	*Public convenience is available*
Sewer line	*Approximately 1.5 KM sewer line within campus*
Stagnant water	*No stagnant water*
Open drainage	
Industry – (Mention the type)	*No*
Bus / Railway station	*No*
	Vivekananda College, Bus Stop (Near Gate No. 1 & 2)

WASTE MINIMIZATION AND RECYCLING

1. Does your institute generate any waste? If so, what are they?

Yes, Solid waste, Canteen waste, paper, plastic, horticulture, laboratories waste, e-waste, etc.

2. What is the approximate amount of waste generated per day? (in Kg approx.)

Biodegradable waste - 15 Kg
Non-biodegradable waste -5 Kg
Hazardous Waste - 0 Kg

Others < 1 Kg

3. How is the waste managed in the institute? By Composting, Recycling, Reusing,Others (specify)

- *Composting is done for horticulture waste management and food waste management through pit composting, bin composting and composting machine.*
- *Rain water is being stored in a large underground tank and is used for gardening purpose*
- *E-waste collection and management through recycled – authorized vendor*

4. Do you use recycled paper in institute?

No

5. How would you spread the message of recycling to others in the community?

Following are the ways through which college is spreading the awareness about recycling

- *Waste plastic collection drives*
- *Installation of Dustbins for waste plastic collection, e-waste collection and recycling*
- *Installation of incinerator for managing BMW*
- *Tie-ups with e-waste collection agency*
- *Webinars and seminars*

6. Can you achieve zero garbage in your institute? If yes, how?

Not yet achieved. Possible through waste management policy and planning.

1. Minimization of waste production
2. Workshops & Trainings on Waste management

GREENING THE CAMPUS

1. Is there a garden in your institute?

Yes, about 15202 SQM areas are developed as Gardens.

2. Do students spend time in the garden?

Yes, students spend around 2-4 Hours during winters.

3. Total number of Plants in Campus?

Plant type with approx. count

Full grown Trees	*312*
Small Trees	*104*
Hedge Plants	*2852*
Grass Cover sqm	*26205.14 Sqm*

Below are details of plantation

S. No.	Plants	Total number of plants	Plant with name-plate	Location
1	Amaltas	13	1	Parking, Sharda, Gate 2 &1 parking
2	Ashoka Iorgiphala	14 33	1	Herbal Garden, Open Stage, Gate 2, Vivekananda Auditorium
3	Banana	3	0	Herbal Garden, Gate 2
4	Banyan Tree (ficus benghalensis)	2	1	Sports Ground
5	Blackberry (rubus)	14	5	Gate 1, 2, Staff Quarters, Vivekananda Auditorium, Sharda Hall
6	Bottle Brush Tree	3	2	Parking, Sharda Hall

7	Bottle Palm	22	0	Gate 4, 2, Vermicomposting site, Vivekananda Auditorium
8	Cassia siamia	1	1	Parking
9	Champa/ Plumeria	43	3	Gate 1, Vivekananda Auditorium, Sharda Hall, Garden-Gate 2
10	China Palm (Livistona chinesis)	25	5	Vivekananda Auditorium, Parking, Gate 2, Sharda Hall
11	Curry tree	2	1	Garden-Gate 2
12	Cycas revoluta (sago palm)	3	1	Gate 2
13	Date palm	3	1	Gate 1, Parking
14	Drumstick tree	2	1	Near Synthetic Track
15	Fish tail palm	11	1	Sharda Hall
16	Guava	12	1	Gate 1 Principal house, gate3,sport
17	Gular (ficus resmosa)	2	1	Near Synthetic Track, Sharda Hall
18	Gulmohar (delonix regia)	7	1	Gate 2, Staff Quarters
19	Hibiscus	26	1	Gate 1, 2, Garden-Gate 2
20	Jack fruit	3	2	Gate 2, Staff Quarters
21	Kabuli kikar (prosopis juliflora)	2	0	Sports Ground
22	Kalp vriksh	1	1	Principal Bungalow
23	Lemon tree	4	0	Gate 2, Staff Quarters
24	Maror Fali (Helicteres isora)	2	1	Near Vivekananda Auditorium, Canteen
25	Maulsari	12	2	Gate 2,Gate 1 Parking
26	Naval orange	1	1	Open Stage
27	Neem	16	2	Gate 1, Behind Vivekananda Auditorium, Sports Ground, Sharda Hall, Staff Quarters
28	Peepal (ficus religious)	8	0	Near Synthetic Track, Gate 2, 3
29	Pilkhan (white fig)	1	1	Gate no 2
30	Pome granate	1	1	Gate 1
31	Purple diamond (loropetalun Chinese)	12	0	Gate 1, Parking
32	Wood apple	8	1	Canteen, Vivekananda Auditorium Sport ground
33	Mango	12	0	Staff Quarters, Gate 2, Garden-Gate 2
34	Mahua	3	2	Vivekananda Auditorium
35	Foxtail palm	13	3	Vivekananda Auditorium, Gate 1&2
36	Seeba	1	0	Gate 1
37	Muchkan Champa	1	0	Staff Quarters
38	Alstonia	2	2	Gate 2
39	Tikoma	3	1	Staff Quarters& Gate-2
40	Papdi	2	0	Gate 1, Synthetic Track

41	Arzun	6	1	Gate 1, 3, Vivekananda Auditorium, Green house
42	Balam Kheera	5	1	Staff Quarters, Sports Ground
43	Sheesam	1	0	Gate 2
44	Kadam	4	1	Open Stage, Garden-Gate 2
45	Parijaat	2	1	Staff Quarters
46	Semal	2	2	Staff Quarters, Sports Ground
47.	Terminialia	1	-	New Building front
48.	Amala	1		Near Green house

4. Is the College campus having any Horticulture Department? (If yes, give details)

Yes, Total 5 staff (maali) deployed in horticulture department

5. How many Tree Plantation Drives organized by campus per annum?

Two Plantation Drives are Organized by campus in the last FY.
Survival rate is more than 85%.

6. Is there any Plant Distribution Program for Students and Community?

No

8. Is there any Plant Ownership Program?

No

WATER AND WASTEWATER MANAGEMENT

1. List uses of water in your institute

Basic use of water in campus:

Drinking *– 74.84 KL/month*

Gardening *– 660.37 Kl/month*

Kitchen and Toilets *– 492.22 KL/month*

Others *– 176.73 KL/month*

Hostel *– 0 KL/Month*

2. How does your institute store water? Are there any water saving techniquesfollowed in your institute?

Available total water storage is 90,000.

2 tanks of 5000 litres = 10,000 litres

10 tanks of 1000 litres = 10,000 litres

1 Underground tank of 50,000 litres = 50,000 litres

1 Overhead tank of 20,000 litres = 20,000 litres

**20% of water is being used for athlete track and hockey sports ground.*

3. Locate the point of entry of water and point of exit of waste water in yourinstitute.

Entry *- Water comes from Delhi Jal board and borewell*

Exit*- From Canteen, Toilets, bathrooms and Labs through covered drainage which is connected to sewage*

4. Write down ways that could reduce the amount of water used in your institute

Basic ways:

- *Close the taps after usage*
- *Water Conservation awareness for new students*
- *Maintenance and monitoring of valves in supply system to avoid overflow, leakage and spillage*
- *Sensor based taps and push tap are installed to save water*
- *Water recycling and use of sprinklers for gardening*

ANIMAL WELFARE

1. List the animals (wild and domestic) found on the campus (dogs, cats,squirrels, birds, insects, etc.)

Hundreds of Birds, 5-6 dogs, 5-7 Cats, around 30+ Squirrels and 20+ butterfly species are found in campus. A variety of bird's species and other flora and fauna are available, so institute is doing their bit for bio diversity conservation.

2. Does your institute have a Biodiversity Program or a KARUNA CLUB?

*Yes, Vivekananda College's **Eco club** actively organizes awareness through various campaigns and activities including seminars, poster competition, etc.*

CARBON FOOTPRINT - EMISSION & ABSORPTION

1. Electricity used per year - CO2 emission from Electricity

(electricity used per year in kWh/1000) x 0.84
18165 kWh/1000 x 0.84

= 18165/1000x0.84

= 48.68 tons

2. LPG/PNG used per year - CO2 emission from LPG/PNG

(LPG/PNG used per year in KG) x 2.99
215 x 2.99

=215 x 2.99

3. Diesel used per year CO2 emission from HDS (Diesel)

(Diesel used per year in litres) x 2.68

=435 x 2.68

= 435 x 2.68

4. Transportation per year (car) CO2 emission from transportation (Bus and Car)

There are no college owned vehicles, so no Co2 emission.

Total CO2 emission per year cumulative by electricity usage + bus and car is 155.44 tons

CARBON ABSORPTION BY FLORA IN THE INSTITUTION

There are 312 full grown trees and 104 semi grown trees of different species, on the campus spread over 10 acres.
Carbon absorption capacity of one full grown tree 22 kg Co2 Therefore Carbon absorption capacityof 312 full-grown trees 312 x 22 kg Co2 = 6.86 tons of Co2.

The carbon absorption capacity of 104 semi-grown trees is 50% of that of full-grown trees. Hencethe carbon absorption 104 x 6.8 kg of Co2 = 0.71 tons of Co2

There are approximately Hedge Plants 2852 of various species being raised in the gardens and grown in the areas where no buildings are built Carbon absorption of bush plants varies widely with their species. Certain bushes absorb very high level of Co2 where as some others absorb very low level of Co2. In the absence of a detailed scientific study, 200g of Co2, absorption is taken per bush (in consultation with Environmental Science specialists). Based on this, total carbon absorption of bushes is 2852 x 200 g = 0.57 ton of Co2

The lawns on the campus have buffalo grass, Mexican grass and indigenous grass species and cover a total area of 282069.78 sq. ft. Carbon absorption capacity of a 10 sq. ft. area of lawn is 1 g per day Therefore, carbon absorption by lawn area 282069.78 x 365 x 0.1 g Co2 = 10.30 tons Co2per year.
Grand total of carbon absorption capacity of the campus is 18.44 tons.

GREEN INITIATIVES BY CAMPUS

- **Solid Waste Management**
  - The institution has two functional compost pits for organic solid waste management.
  - There is ban on single use plastic and plastic crockery in the campus.

- **E-waste Management**
  - College has a separate storeroom for the safe storage of electronic waste. After a certain interval of time college disposes of the E-waste to concerned agencies through the auction process.

- **Rain water harvesting**
  - The central area of the new building of college has a rainwater harvesting system for better groundwater recharge. The stored water in this tank can be used for gardening purposes and supply to the running track.

- **Renewable Energy**
  - The college has also installed approximately 162 solar panels (50 KW) on therooftop of new and old buildings.
  - The College is using solar lights for street lights.

- **Greening the campus**
  - The college campus has approximately 46 different species of trees. The number of different species is different and they vary from 1 to 35. China palm has been observed with a maximum number of trees (35) followed by Ashoka tree (30). Total312 trees were counted in the campus of the institution.
  - Two plantation drives were carried out in the current year in the Campus.
  - Plants survival rate is around 85%
  - A greenhouse has been established in the college premises to maintain greenery inthe campus.

- **Air Pollution Reduction**
  - Personal Vehicles (Students) are not allowed in the campus
  - College is monitoring air quality through monitoring of $PM_{2.5}$ Concentration

- **Environment Committee Initiatives** – Vivekananda College has eco club. Below are the highlights of their work on environment cautiousness.

  - The Vivekananda College, University of Delhi organises cleanliness drive under swatchhta pakhwara from 1st Aug – 15th Aug 2021. Under this drive, NSS volunteers clean the nearby areas and houses and took the step forward to make their locality clean and beautiful.

  - The college organized a Best out of Waste activity under swatchhta pakhwara . Thestudents from various colleges had participated in the event and helped to make ita great success.

  - College organised "Paper Bag Campaign" from 1st July 2021 to 15th July 2021. In this campaign, volunteers prepared paper bags and gave them to medical stores ordepartmental stores near to the house. The aim of this campaign was to reduce theuse of plastic bags.

  - College organised Poster Making Competition on the occasion of World Ozone

Day16th Sep. Theme for the competition was Ozone For Life.

- College celebrated Van Mahotsav from 27th to 31st July 2021.Under the Van Mahotsav, the unit has organised three events – Vraksharopan, 5 days awareness drive and a pledge.

CONCLUSION

This audit involves considerable team discussions and meetings with key staff members on a variety of environmental-related topics. The eco club of Vivekananda College promotes conservation of resources.

Overall 65% of Vivekananda College is for landscaping. The college makes a significant effort to act in an environmentally responsible manner and takes into account the environmental effects of the majority of its activities. The recommendations in this report suggests some more ways in which the college can work to improve its practices and develop into a more sustainable institution.

It's important to begin a few things, such as increasing Solar PV capacity, initiating drip irrigation and checking the water flow from the taps. Additionally, we strongly advise installing water metres at each building/block and water balancing report.

Environment Audit

The environment audit is a snapshot in time, in which one assesses campus performance in complying with applicable environmental laws and regulations. Though a helpful benchmark, the audit almost immediately becomes out-dated unless there is some mechanism in place to continue the effort of monitoring environmental compliance. Our approach to promote a Green Campus to inculcate the sustainable value systems among the students, so that they carry the learning and practices them in their future endeavours. This will ensure that Sustainability and Environmental practices get embedded in all the institutions and organizations in the country.

A Green Campus is a place where environmentally friendly practices and education combine to promote sustainability in the campus which ultimately offers an institution the opportunity to take the lead in redefining its environmental culture and developing new paradigms by creating sustainable solutions to environmental, social and economic needs of the mankind.

This is the first environment audit of college for doing their bit towards environmental protection and environmental awareness at local and global front. Audit criterion is environmental cognizance, waste minimization and management, biodiversity conservation, water conservation, energy conservation and environmental legislative compliance by the campus. A questionnaire is used during audit. This audit report contains observations and recommendations for improvement of environmental consciousness.

WASTE MANAGEMENT

TYPE OF WASTE ON COLLEGE CAMPUS

To create effective waste management plans, college first need to know the type of waste being generated at the campus. Below, we have compiled a list of various kinds of waste commonly generated on institutional campus:

1. **FOOD WASTE -** College campus generates food waste. The average mess and canteen generates approximately 10 kg of food waste a day. The reasons for food waste on an educational campus may be over purchasing food to ensure a sufficient supply and then throwing it away, especially in all hostel messes where plentiful stores are essential. And in the cafeteria or hostel mess, students may pile food onto their trays, find it unappealing once they sit down and dutifully scrape it into the garbage. Immediate attention is given to the food waste minimization techniques.

2. **RECYCLABLE PAPER, CARDBOARD, PLASTIC, GLASS AND CANS -** Campus tends to produce vast quantities of these recyclables. Even in the digitalage, many students, professors and staff members still prefer handwritten notes and end up with piles of unwanted paper once their courses and projects are complete. And shipments of necessary items throughout the year are likely to arrive in recyclable plastic and cardboardpackaging. The same is sold/auctioned to the scrap vendors time to time.

3. **STUDENT CLOTHES AND HOUSEWARES -** As we have mentioned above, many students find it more convenient to throw away their clothes and dorm furnishings atthe end of the year than donate or recycle them. So, Vivekananda College has regular clothes donation and recycling drives in the campus

4. **E–WASTE -** Student and facility electronics often form a large portion of a campus's waste — As campus continually upgrade their computing facilities and office computers to keep up with the latest technology, the old computers have to go somewhere. So do old printers, phones, copy machines and other electronics that receive upgrades over the years. Discarded student electronics often become part of a campus's waste stream as well. Students may throw away old phones, TVs, tablets, laptops and printers, along with cords and other accessories. Recycling is a much more eco-friendly option — the metals in old electronics often have a high reuse value.

CHEMICAL WASTE - Chemical waste on a college campus may come from numerous sources. Campus laboratories generate waste chemicals, as do cleaning services. The detergents used in campus laundry rooms eventually become waste as well. Much of these chemical substances are hazardous waste under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and must undergo specific disposal processes according to state environmental rules and regulations.

5. **MAINTENANCE WASTE -** In the maintenance department, spent paints, solvents, adhesives and lubricants all form potentially hazardous waste. Because they are difficult to recycle, spent incandescent light bulbs usually become landfill waste. Spent fluorescent

light bulbs, which contain small amounts of mercury, typically require special handling because of the environmental and health risks they pose.

6. **BIOLOGICAL WASTE** - Biological waste from laboratories will require special handling and disposal as per BMW Rules, 2016. VIVEKANANDA COLLEGE has installed manyincinerators at different location to dispose BMW waste.

7. **FURNITURE** - Furniture waste on a college campus has a couple different sources. The campus itself may also get rid of old furniture as it modernizes its classrooms, cafeterias, computer labs and study spaces. Annually sold to junk dealer.

8. **BOOKS/MAGAZINES/NEWSPAPERS** - Books accounted for solid waste generation and institutions often generate tons of textbook waste. As courses upgrade to new editions, they may end up throwing their newly obsolete textbooks into the garbage if donation programs cannot use them. Students of Vivekananda College donates their text books and notes to junior students, or else are auctioned to reseller.

9. **C & D WASTE** - Due to expansion of campus building and renovation works result significant amount of construction and demolition waste that should be either used for backfilling or disposed off through authorised dumping site by CPCB/SPCB.

10. **SOLID WASTE** - The College is managing solid waste by providing it to the MCD.

11. **HORTICULTURE WASTE** – College campus has lavished greenery and grounds that results significant horticulture waste which is managed by in-house composting system.

ENERGY CONSERVATION

1. **List ten ways that you use energy in your institute. (Electricity, LPG, firewood, others). Using this list, try to think of ways that you could use less energy every day.**

A. Electricity

- *Lights, Fans, Air conditioners*
- *Lab equipment*
- *Computers in labs, faculty rooms & offices*
- *Cafeteria*

B. LPG

Ways to use less energy

- *Using Energy efficient appliances*
- *Switching off the electrical equipment when not in use*
- *Use of Air conditioners at optimum temperatures as per the utilizationschedule*
- *LED lights*

2. **Are there any energy saving methods employed in your institute? If yes, please specify. If no, suggest some**

- *LEDs installed*
- *Use of Air conditioners at optimum temperatures as per the class timetable*
- *Car pooling*
- *Solar panels installed*

3. **How many CFL/LED bulbs has your institute installed?**

Approx 14 % of Total Conventional bulbs and tubelights are replaced by LED Lights.

4. **Do you run "switch off" drills at institute?**

   NO

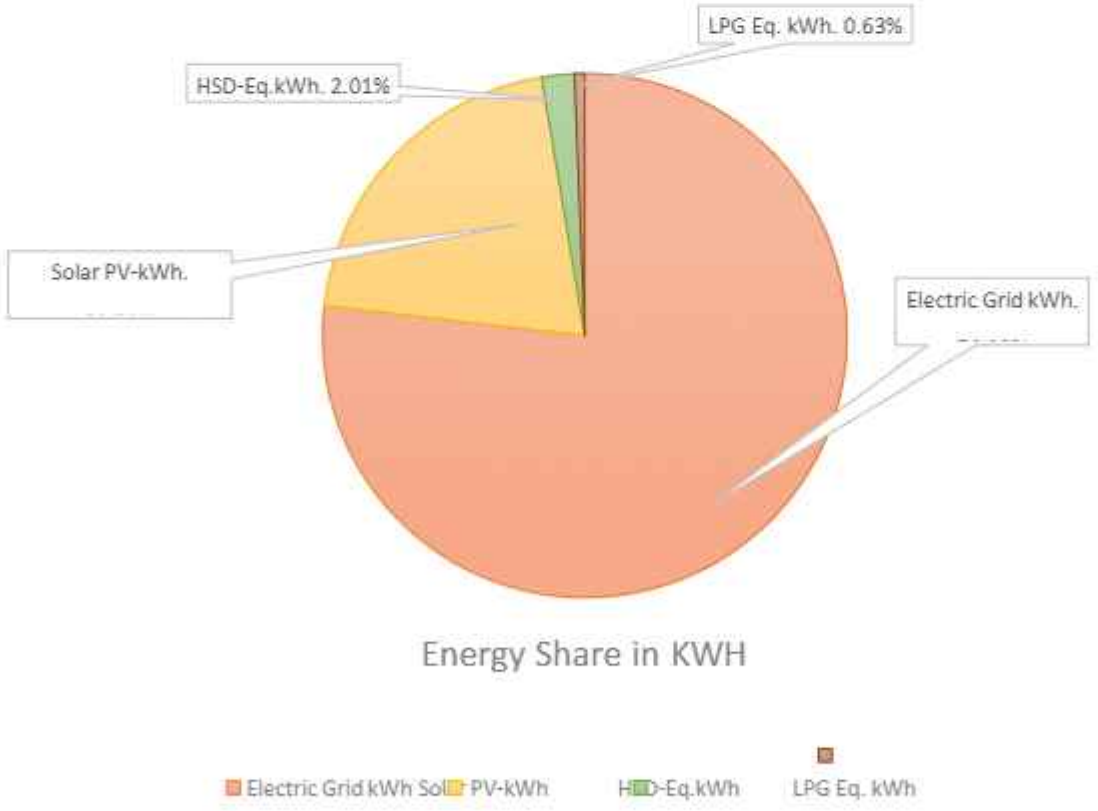
5. **Are your computers and other equipment's put on power-saving mode?**

Yes

6. Does your machinery (TV, AC, Computer, weighing balance, printers, etc.) run on standby modes most of the time? If yes, how many hours?

Yes, In office hours

Energy Share	kWh	Percentage
Electric Grid kWh	181952.00	76.83%
Solar PV-kWh	48608.00	20.52%
HSD-Eq. kWh	4767.60	2.01%
LPG Eq. kWh	1500.70	0.63%
Total -kWh	236828.30	100%



WATER AND WASTE-WATER

MANAGEMENT

1. List uses of water in your institute

Basic use of water in campus is Drinking, Gardening, Kitchen & Toilets, Others

Summary of Monthly Water Consumption and Total Bill Amount

Period		Conjumption in KL	Amount
From	To		
12.06.2022	15.07.2022	517	134459.00
15.07.2022	13.08.2022	438	113569.00
13.08.2022	15.09.2022	518	134740.00
15.09.2022	18.10.2022	354	88639.00
18.10.2022	15.11.2022	426	110526.00
15.11.2022	14.12.2022	382	97827.00
14.12.2022	16.01.2023	292	71210.00
16.01.2023	16.02.2023	305	75524.00
16.02.2023	10.03.2023	226	56282.00
10.03.2023	15.04.2023	267	63194.00
15.04.2023	15.05.2023	328	82319.00
15.05.2023	15.06.2023	341	85644.00
Sum		**4394**	**1113933.00**

2 How does your institute store water? Are there any water saving techniques followed in your institute?

Available total water storage is 90,000.

2 tanks of 5000 litres = 10,000 litres
10 tanks of 1000 litres = 10,000 litres

1 Underground tank of 50,000 litres = 50,000 litres
1 Overhead tank of 20,000 litres = 20,000 litres

**20% of water is being used for athlete track and hockey sports ground*
Saving Techniques

- *Avoid overflow of water-controlled valves are provided in water supplysystem.*
- *Close supervision for water supply system.*
- *Sensor based taps are installed*

3. Locate the point of entry of water and point of exit of waste water in your institute. (Entry and Exit)

Entry - Water comes from DJB and Borewell

Exit- From Canteen, Toilets, bathrooms and Labs through covered drainage which is connected to sewer

4. Write down ways that could reduce the amount of water used in your institute

Basic ways:

- *Close the taps after usage*
- *Water Conservation awareness for new students*
- *Maintenance and monitoring of valves in supply system to avoid overflow, leakage and spillage*
- *Sensor based taps and push tap are installed to save water*

5. Does your institute harvest rainwater?

The college has a rainwater storage system for better groundwater recharge. The stored water in this tank can be used for gardening purposes and supply to the running track.

6. Is there any water recycling System?

No

AIR QUALITY MANAGEMENT

1. Are the Rooms in Campus Well Ventilated?

Yes, as per National Building Code, guidelines

2. Window Floor ratio of the Rooms?

Very Good, ample daylight utilization because of big windows.

3. What is the ownership of the vehicles used by your campus?

There are no college owned vehicles.

4. Provide details of Institute-owned vehicles?

NA

5. PUC done?

NA

6. Specify the type of fuel used by your campus's vehicles

NA

8. Air Quality Monitoring Program (If, Any)

Monitoring of PM2.5 Concentration was carried out in college in 2018.

PM2.5 aerosols concentrations were measured with the help of the CSIR-National Physical Laboratory at a site in Vivekananda College, Delhi. PM2.5 sampler (PM2.5, model Envirotech, APM 550) is based on impactor design and is standardized by USEPA for ambient air monitoring.

ENVIRONMENT LEGISLATIVE COMPLAIANCE

1. Are you aware of any environmental Laws Pertaining to different aspects of environmental management?

Yes

2. Does your institute have any rules to protect the environment? List possible rules you could include.

Yes, Vivekananda College's- Eco club is conscious about the environment protection and takes proper measures in terms of awareness campaigns, activities, webinar, seminars, etc.

3. Does Environmental Ambient Air Quality Monitoring conducted by the Institute?

Yes

4. Does Environmental Water and Waste water Quality monitoring conducted by the Institute?

No

5. Does stack monitoring of DG sets conducted by the Institute?

No

6. Is any warning notice, letter issued by state government bodies?

No

7. Does any Hazardous waste generated by the Institute?

No

GENERAL INFORMATION

1. Does your institute have any rules to protect the environment? List possible rules you could include.

- *Periodic Plantation drive*
- *Ban on single use plastic*
- *Biodegradable waste management through Composting, solid waste management*
- *Water and energy conservation through posters*

2. Are students and faculties aware of environmental cleanliness ways? If Yes Explain

Yes. Vivekananda College creates awareness through ECO Club activities, Webinars, cleanliness drives in the community.

3. Does Important Days Like World Environment Day, Earth Day, and Ozone Day etc. eminent in Campus?

Yes, World Environment Day, Ozone Day, Earth Day, World water day, World wetland Day,Earth hour and more are celebrated by campus.

4. Does Institute participate in National and Local Environmental Protection Movement?

No

5. Does Institute have any Recognition or certification for environment friendliness?

Certificates are attached in annexure I

7. Does Institution conduct a green or environmental audit of its campus?

This is the first external audit carried out by the college.

INITIATIVES CARRIED OUT BY

COLLEGE

- The Vivekananda College, University of Delhi organises cleanliness drive under swatchhta pakhwara from 1st Aug – 15th Aug 2021. Under this drive, NSS volunteers clean the nearby areas and houses and took the step forward to make their locality clean and beautiful.

- The college organized a Best out of Waste activity under swatchhta pakhwara . The studentsfrom various colleges had participated in the event and helped to make it a great success.

- College organised "Paper Bag Campaign" from 1st July 2021 to 15th July 2021. In this campaign, volunteers prepared paper bags and gave them to medical stores or departmentalstores near to the house. The aim of this campaign was to reduce the use of plastic bags.

- College organised Poster Making Competition on the occasion of World Ozone Day 16th Sep.Theme for the competition was Ozone For Life.

- College celebrated Van Mahotsav from 27th to 31st July 2021.Under the Van Mahotsav, theunit has organised three events – Vraksharopan, 5 days awareness drive and a pledge

CONCLUSION

This audit involved extensive consultation with all the campus team, interactions with key personnel on a wide range of issues related to environmental aspects. Overall, 65% of college campus is for landscaping. Vivekananda College is dedicated to promote the environment management and conservation in the campus and community. The audit has identified some suggestions for making the campus premise more environment friendly. The recommendations and suggestions are mentioned for campus to initiate actions.

The audit team opines that the overall site is well-maintained from environmental perspective. The recommendations in this report highlight many ways in which the college can work to improve its actions and become a more sustainable institution.

ENERGY AUDIT

The purpose of this Energy Audit was to seek opportunities to improve the energy efficiency of the Vivekananda College. Reducing the energy consumption despite improving the human comfort, health and safety were of primary concern.

Beyond just identifying the energy consumption pattern, this audit sought to detect and categorize the most energy efficient appliances. Additionally, some daily practices relating common appliances have been shared which may help reducing the energy consumption. Data collection for energy audit of the campus was carried out by the EHS Alliance Team. The Energy Audit Report accounts for the energy consumption patterns of the institution on actual survey and detailed analysis during the audit.

The work comprehends the area wise consumption traced using suitable equipment. The analysis was carried out by our team with the support of the staff members from Vivekananda College. The report provides a list of possible actions to preserve and efficiently access the available source, resources and their saving potential was also identified. We look forward towards optimization that the authorities, students and staff members would follow the recommendations in the best possible way. The report is based on certain generalizations including the approximations wherever necessary. The views conveyed may not reveal the general opinion. They merely represent the opinion of the team guided by the interviews of clients. We are happy to submit this Energy audit report to the Vivekananda College.

ENERGY AUDIT – ANALYSIS

1.ENERGY CONSUMPTION

To understand the Energy Consumption trends and for analyzing the average monthly consumption we have collected electricity energy bills from July 2021 to June 2022

The details of **"Meter Connection"** at **"Vivekananda College"** are as follows-

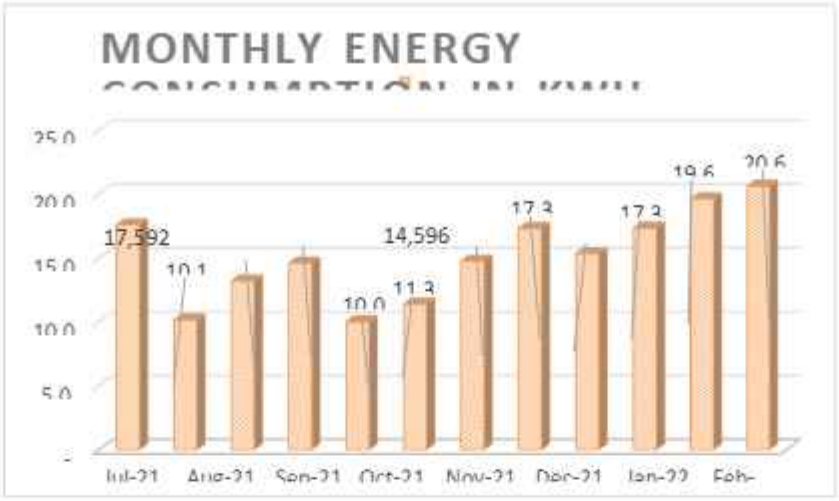
Name - The Principal Vivekananda College

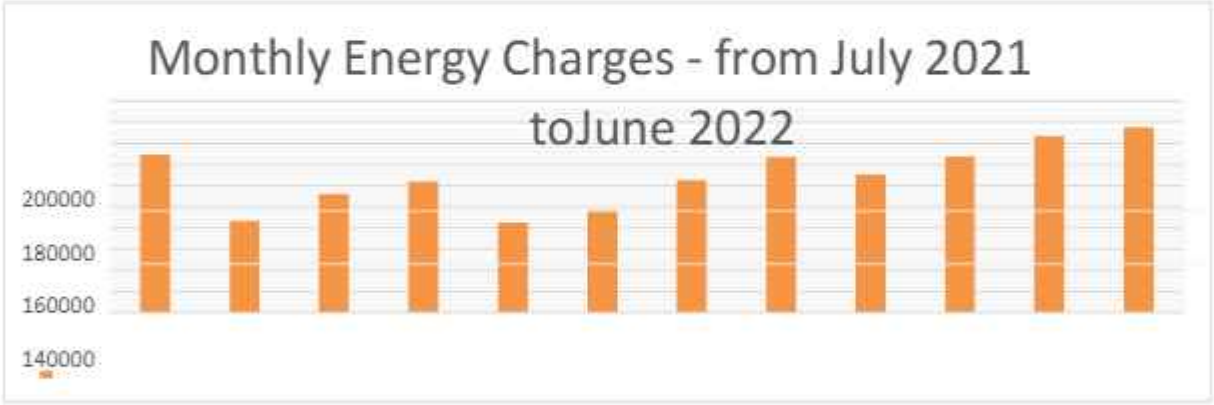
CA No. - 100013169

Summary of Monthly Electricity Consumption and Total Bill Amount

To understand the Energy consumption trend and for developing the baseline parameter we have collected monthly energy bill for the 12 months i.e. from July 2023 to June 2024

Month	Grid Billing			Solar PV(unit)	Rate	Amount	Total	Amount in
		Rate	Amount				Unit	INR
Jul-22	27654	8.50+ other charges	380710	3618	5.8	20984	31272	401694
Aug-22	19567		289000	2031		11780	21,598	300,780
Sep-22	24087		344710	1126		6531	25213	351241
Oct-22	20422		295930	2510		14558	22932	310488
Nov-22	14809		526680	3329.4		19311	18,138	545,991
Dec-22	11913		188570	4255.3		24681	16,168	213,251
Jan-23	14313		220300	2969.1		17221	17282.1	237521
Feb-23	15814		244480	2464.1		14292	18278.1	258772
Mar-23	15523		242860	2667.9		15474	18190.9	258334
Apr-23	13421		202150	3541.7		20542	16962.7	222692
May-23	17803		260860	2612.6		15153	20415.6	276013
Jun-23	20013		290319	8619.3		49992	28632.3	300302
SUM	**215339**		**3486560**	**39744.4**		230519	**255083.4**	**3717079**

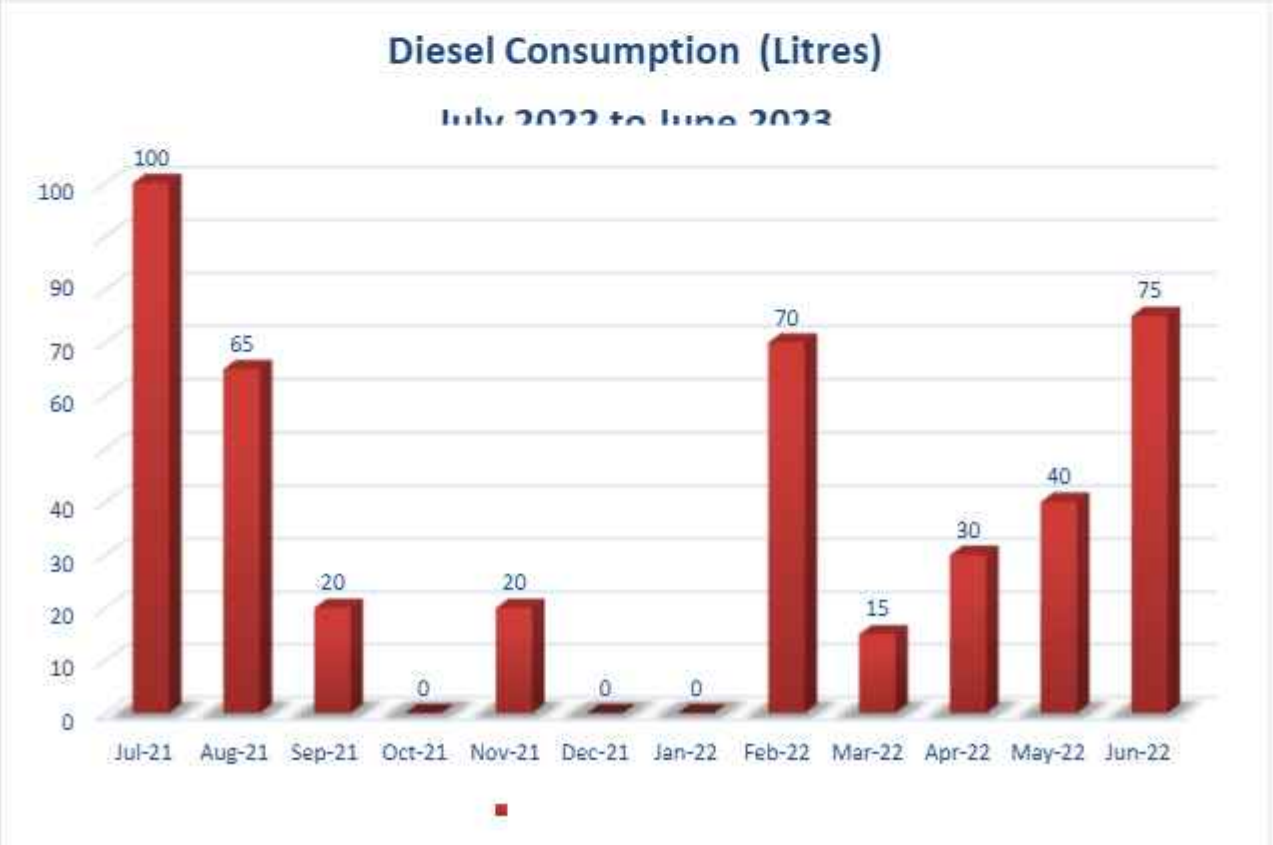

MONTHLY ENERGY
25.0
20.0
15.0
10.0
5.0
-
17,592
10.1
14,596
11.3
17.3
17.2
19.6
20.6
Jul-21
Aug-21
Sep-21
Oct-21
Nov-21
Dec-21
Jan-22
Feb-


Monthly Energy Charges - from July 2021 toJune 2022
200000
180000
160000
140000

2. DIESEL CONSUMPTION

Below is the diesel consumption details in litres from from July 2022 to June 2023.

Period	Diesel consumption (in litres)
Jul-22	37.33
Aug-22	20
Sep-22	00
Oct-22	00
Nov-22	60
Dec-22	48
Jan-23	17.33
Feb-23	08
Mar-23	08
Apr-23	32
May-23	37.33
Jun-23	17.33
Total	**285.32**



ANALYSIS OF DG SETS

In the campus, there is only one Diesel Generator (DG) set for its electrical power needsin case of Grid power failure. DG sets capacity is 200 kVA.

DG Set Design Details		
Description	***Unit***	***DG at Station 1***
Rated capacity	kVA	200 KVA
Hz		50
Sl No.		21/03/2009/1294
Make		Kirloskar
Volts	Volts	415 Volts
PF		0.8
Phase		3 Phase
RPM		1500
Amps	Amps	385
Mfg.		Mar, 2009

DG Set Operation details		
Operating hours during testing	Hours	0.50
% Loading	%	62.37
Energy Generation	kWh	33.64

Load	kVA	92.81
Fuel consumption during testing	Litre	8
Specific energy generation	kWh/litre	3.24

Observation and Suggestions :-

Soundproof silent generators are an efficient tool to keep both noise and vibration at low levels. For the power backup of the institution, the soundproof model is installed near Gate no. 2 of the institution.

As per the trial taken during the energy audit the percentage loading of DG set is 62.37% which is ok and specific energy consumption of DG Sets 3.24 kWh/Litre which is satisfactory because as per manufacturer recommendation, best practices for SEC in DG sets range from 3.0 to 3.5 kWh/Litre and above.

We recommend college to initiate stack monitoring of DG set through authorized lab.

4. AC SYSTEM

Energy Efficiency Ratio (EER): Performance of smaller chillers and rooftop units is frequently measured in EER rather than kW/ton. EER is calculated by dividing a chiller'scoolingCapacity (in Btu/h) by its power input (in watts) at full-load conditions. The higher the EER, the More

efficient the unit. The cooling effect produced is quantified as tons of refrigeration (TR). The above TR is also called as air-conditioning tonnage.

There are Split ACs installed in Vivekananda College in various areas of various capacity which detail is given below:-

Sl No.	Location/Identification	Type (Window/Split)	Rated capacity (TR)	Qty	Room Temp. (°C)	AC-Tout (°C)	AC-Tin (°C)	Room-RH (%)	Area (m2)	Air velocity (m/s)	Enthalpy Hout	Enthalpy Hin	Heat Load in TR	KW supplied	(Eff.) Power per Ton (KW /TON)	EER
1	Academic	S	1.5	6	24	12	20	52	0.03	2.2	25	38	0.32	0.55	1.72	2.04
2	Administration	S	1.5	0	24	11	19	52	0.03	2.6	24	37	0.38	0.57	1.52	2.31
3	Academic	W	1.5	2	24	10	18	52	0.03	2.4	24	37	0.35	0.53	1.53	2.3
4	Administration	W	1.5	4	23	12	20	52	0.03	2.3	25	38	0.33	0.55	1.67	2.11
1	Academic	S	2	10	23	11	19	52	0.03	2	22	37	0.33	0.58	1.74	2.02
2	Administration	S	2	10	23	13	20	52	0.03	2.3	26	38	0.31	0.53	1.74	2.02
3	Academic	W	2	8	23	12	20	52	0.03	2.2	25	38	0.32	0.55	1.74	2.03
4	Administration	W	2	9	23	12	19	52	0.03	2.3	24	37	0.33	0.58	1.74	2.02

Remarks: - We have checked Energy Efficiency Ratio of AC's and EER of AC's is fairly OK. But in future you should purchase 5-Star rated invertor based split AC's because power consumption of Inverter based BEE 5-Star rated AC's is less than non-star rated AC's.

Also, we recommend Vivekananda College to organize periodic maintenance schedule and take corrective actions for insulating of AC's refrigerant lines in order to protect energy losses.

5. FANS ANALYSIS

In the Vivekananda College, there are 421 fans installed, all are ceiling fans of 60W. Theobservation and suggestion are given below.

Sl No.	Location/Identification	Ceiling Fan-60W	Ceiling Fan-120W
1	Administration and Account	20	
2	Staff Room	10	
3	Old Academic Buildig GF	45	
4	Old Academic Buildig FF	44	
5	Old Academic Buildig SF	80	
6	New Academic Buildig GF	39	
7	New Academic Buildig FF	28	
8	New Academic Buildig SF	25	
9	New Academic Buildig TF	21	
10	Small Auditorium	10	
11	Sports Room	7	
12	Canteen	7	
13	Computer Labs (Room 5, 10, 30, 31 and server room)	27	
14	Library	58	
	Total	421	

Other fan details

Bracket fans: 29

Observation and Suggestions:-

In the college, all the ceiling fans are of 60 W but BEE 5 Star Rated of 30W Ceiling Fans are present in the market. But the pay-back period for new BEE 5 star rated fans is longer, so we don't recommend to replace to BEE 5 Star rated 30W fans.

ECRM-1-Energy saving by replacing 60 W fans with energy efficient 30W ceiling fans

Total no of Ceiling Fans (60W)	=	421	Nos.
Total wattage of 60W Ceiling Fans	=	25260	Watt
Total wattage of BEE 5 Star rated Fans (30W)	=	12630	Watt
Total saving in Wattage after replacement	=	12630	Watt
Operating hours per day	=	8	Hours
Operating days per annum	=	180	Days
Energy charges per unit in Rs.	=	8.5	INR
Saving in Rs./annum	=	154591.20	INR
Investment INR	=	1052500	INR
Payback period:- Months	=	6.8	Years

Note:- Energy saving will increase or decrease if operating hours of machine /equipment will be increased or decreased and payback period will also increase or decrease if cost of investment (Cost of machine/equipment/accessories of machine) will increase or decrease because cost of investment is taken on tentative basis.

6. ANALYSIS OF LIGHTING SYSTEM

Brief description of existing system

For assessing energy efficiency of lighting system, Inventory of the Lighting System has been noted / collected, with the aid of a lux meter, measurement and documentation of the lux levels at various locations at working level has been done.

Inventory of Lighting

Sl. No.	Location/Identification	200W-LED High Mast	10W LED	36W Tube lights	20W LED
1	Sports Ground	8			
2	Garden	8			
3	Open Stage	24			
4	Administration and Account			48	16
5	Staff Room				31
6	Old Academic Building GF			76	22

7	Old Academic Building FF				84		
8	Old Academic Building SF				78		
9	New Academic Building GF				53		
10	New Academic Building FF				53		
11	New Academic Building SF				45		
12	New Academic Building TF				45		
13	Small Auditorium				5		
14	Sports Room				10		
15	Canteen		5		1		
16	Computer Labs (Room 5, 10, 30, 31 and server room)				42	6	
17	Library				180		
18	Big Auditorium				20		
19	**Total**	**40**	**5**	**740**		**75**	

Lux Measurement

Description	Lux	Remark
Class Rooms	120 to 235	Acceptable
Offices	130 to 240	Acceptable
Corridors	35 to 90	Acceptable
Washrooms	45 to 76	Acceptable
Outdoor	36 to 95	Acceptable
Computer Lab	150 to 289	Acceptable
Parking area	45 to 94	Acceptable
Canteen	69 to 185	Acceptable

Observation

College has initiated LED based lighting solution, but still there are 740 (36W) tube lights. LEDs save energy, the life span is much greater and emit virtually no heat. We recommend to replace the tube lights with LEDs.

Additionally, we recommend to install motion sensor-based lights in common areassuch as library, washrooms, corridors, etc.

We also recommend to use solar lights for open areas like parking, ground, street lights, etc. Table below shows the performance characteristics comparison of all luminaries.

Table - Luminous Performance Characteristics of Commonly Used Luminaries					
Type of Lamp	Lumens/Watt		Colour Rendering Index	Typical Application	Typical Life
	Range	Avg.			
Incandescent	8-18	14	Excellent (100)	Homes, restaurants, general lighting emergency lighting	1000
Fluorescent lamps	46-60	50	Good w.r.t coating (67-77)	Offices, shops, hospitals, homes	5000
Compact fluorescent Lamps (CFL)	40-70	60	Very Good (85)	Hotels, shops, homes, offices	8000-10000
High pressure mercury (HPMV)	44-57	50	Fair (45)	General lighting in factories, garages, car parking. flood lighting	5000
Halogen lamps	18-24	22	Excellent (100)	Display, flood lightening, stadium exhibition grounds, construction areas	2000 - 4000
High pressure sodium (HPSV) SON	67-121	90	Fair (22)	General lighting in ware houses, factories, street lighting	6000 - 12000
Low pressure sodium (LPSV) SOX	101-175	150	Poor (10)	Roadways, tunnels, canals, street lighting	6000 - 12000
Metal halide lamps	75-125	100	Good (70)	Industrial bays, spot lighting, flood lighting, retail stores	8000
LED Lamps	30-50	40	Good (70)	Reading lights, desk lamps, night lights, spotlights, security lights, signage lights, etc.	40000 - 100000

Inventory of IT Infrastructure

Location/Identification	Computer Lab	Administration, Accounts, Library
Desktop	124	50
Laptop	26	2
Printers	6	26
Scanners	2	6
Servers	1	2

Water pump details

Sr. No.	Description	Unit	Pump No.-1	Pump No.-2
1	Rated Power of Motor	KW	3.7	2.3
2	Motor Eff.	%	49	49
3	Discharge Head	m	62	50
4	Suction Head	m	75	62
5	Pump Type	Submersible /Monoblok /Centrifugal Etc.	Monoblok	Monoblok

Exhaust fan details

60W Exhaust Fan	12
500W Water Coolers	9
800W Microwave	2
1000W Refrigerators	7
1200W Xerox Machine	3

ANALYSIS

There should be regular maintenance schedule of equipment like pumps, exhaust fans and IT equipment. Electronics such as computers, printers, scanners, etc. more than 3 year or 5 years (as per their life) should be replaced with new computers/laptops. Ideal Temperature should be maintained for all electronic appliances.

******* END OF THE REPORT**

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Environmental Audit Report
2023-24
Vivekananda College
University of Delhi

Vivekananda College was set up in 1970 in a school building in Gandhi Nagar by the Delhi Administration (now the Govt. of NCT of Delhi) out of grants from UGC and Delhi Administration with a specific objective of providing opportunities for higher education to women in the Trans-Yamuna area.

The foundation stone of the present College building was laid on 26 October 1976 by Prof. S. Nurul Hassan and the building was dedicated by Swami Ranganathananda of the Ramakrishna Mission in 1979. The college started with approximately 300 students admitted to B.A. (Pass). Since then the college has witnessed a meteoric rise in the number of students seeking admission in the different courses offered by it. It is one of the most sought college in the Trans-Yamuna area for women education.

It has grown to its present stature under the able guidance of the founder Principal, Dr. Raj Wadhwa and the first chairperson of the Governing Body, Dr. R.N. Kataria. Subsequent Chairpersons and members of the Governing Body and Principals added their valuable contributions to the growth and development of the college over the years.The college has developed beautiful gardens and ornamental lawns with a diversity of flora and fauna which contribute to the overall aesthetics of the college and enhance the learning experience.

The dedication, commitment, and loyalty of the teaching and non-teaching staff, along with the enthusiasm and achievements of the students over the years, have contributed to bringing the college to its present enviable position.

Infrastructure And Facilities

The sprawling college campus at Vivek Vihar is spread over an area of over 10 acres which includes 3939 sq.metres of the built-up area and 5.2 acres of open space for a garden and sports facilities. The teaching-learning process is facilitated in 61 classrooms (including 25 classrooms with LCD facilities), 09 laboratories, 151 computers with high-speedinternet connectivity (up to 300 MBPS), 02 seminar rooms, an auditorium and a fully automated library. The entire college campus is Wi-Fi enabled. A synthetic athletic track (200 mts.), the first of its kind in Delhi University, has been laid. The college has a new hockey astroturf ground. The college also provides residential facilities for the Principal, teaching faculty, and non-teaching staff.

The Library is well-stocked and fully computerized. It has around 65,715 books covering almost all aspects of Commerce & Humanities. It regularly subscribes to about 61 periodicals including 10 daily newspapers in Hindi and English. Internet and OPAC facility is also available. U.G.C. Infonet Services including J-STOR is available for the benefit of the academic fraternity. The Library has a "Book Bank" consisting of core texts books, which are issued to deserving students for the whole academic year. Services offered by the library are circulation, consultation, reference and inter-library loan. There is also a collection of audio-visual materials like maps, atlases, compact discs and audio cassettes. The library has comfortable Reading Rooms spread over two floors with a seating capacity of 140. It extends its current awareness services by providing newspapers/ magazines in the Staff Room and the Students' Common Room.The library remains open from 9.00 am to 5.30 pm on all working days. It remains closed on Sundays and other gazetted holidays. The library e-mail is vcln1970@yahoo.com.

Computer Labs – There are nine labs in the college with 151 terminals and internet facilities for the students and teachers. These labs are also equipped with teaching aids such as LCD projectors and scanners. The College wants all its students to be conversant with modern learning aids.

Academic Resources

The Psychology Laboratory is well equipped with different types of apparatus for conducting experiments, such as electronic memory apparatus, tachistoscope, mirror drawing apparatus, etc. A range of psychological tests is also available in the laboratory, for example, personality tests, intelligence tests, aptitude tests, attitude and value scales etc. An additional Psychology lab with computers has also been set up.

The Food Technology Laboratory is equipped with the latest gadgets for students to perform various lab-oriented practicals. The students are provided with expert skills in bakery and preservation of food, so that they can compete with other professionals in the industry. Keeping in mind the changing demands of the food market, several low-cost new food products are also developed every year. Currently the lab is being upgraded and a new laboratory is under construction.

There are two Music Rooms and both are equipped with a variety of instruments to facilitate the students in their practical work and hence equip them with skills of better co-ordination with different instruments.

The students learn Hindustani vocal music and get a chance to perform at various college and inter-college functions.

Sports Facilities

The Sports facilities in the college include a large playground. Intensive training is imparted under expert guidance. Each year, students of Vivekananda College achieve notable distinctions, and many of them are selected for All India Inter-University and National tournaments. Facilities are provided for Athletics, Hockey, Table Tennis, Volley Ball, and Kabaddi Cross Country. A synthetic track (200 mts.), approved by the Ministry of Sports & Youth Affairs, has been laid. The track is one of its kind in among all the colleges of Delhi University.

Auditorium, Canteen, and Bank

Vivekananda Auditorium has a seating capacity of 700. It is fully air-conditioned. The Auditorium hosts various academic and cultural events of the college. It also encourages well-known cultural groups to hold their programmes for the benefit of the students and community. **Sharda Hall** is an air-conditioned facility that can accommodate up to 80 students and is frequently used for seminars, talks, and lectures by external professionals. It has an LCD projector and is also used for screening film shows by the Film Society of the college.

The recently refurnished canteen is the hub of out-of-class discussions and exchange of information. It provides snacks, drinks, and lunch at subsidized rates.Students are given the facility of paying their fee through online banking services.

Medical & Counselling Services

There is a Medical Room in the College which provides first aid and has basic medical equipments. A nurse is available in-office hours five days a week. An Allopathic doctor is available for consultation for three hours, four times a week. The College provides Counselling services to students, throughout the academic session.

Fee Concession & Students' Aid Fund

Fee Concession is granted to very needy and deserving students. Application for fee concession, on the prescribed form (available with the cashier), are submitted to the office on the dates announced for the purpose and allowed as per recommendations of the committee.The Students' Aid Fund has been established for helping needy and deserving students in various forms, e.g. giving them examination fee, conveyance, medical aid, etc. Application for assistance under this scheme is submitted to the college office by the dates notified for the purpose after which a committee studies the forms and recommends deserving cases.

Students' Information Bulletin Board displays information regarding co-curricular activities taking place in the College and other educational institutions; and the website is also updated. The Board also displays important notices and students are required to keep themselves up to date on College affairs. During pandemic days, students were advised to check the website of the college regularly. Moreover, through whatsapp, information was given to Class Representatives of all courses for further dissemination to their classes.

Environment Audit

The environment audit is a snapshot in time, in which one assesses campus performance in complying with applicable environmental laws and regulations. Though a helpful benchmark, the audit almost immediately becomes outdated unless there is some mechanism in place to continue the effort of monitoring environmental compliance. Our approach to promote a Green Campus to inculcate the sustainable value systems among the students, so that they carry the learning and practices them in their future endeavors'. This will ensure that Sustainability and Environmental practices get embedded in all the institutions and organizations in the country.

A Green Campus is a place where environmentally friendly practices and education combine to promote sustainability in the campus which ultimately offers an institution the opportunity to take the lead in redefining its environmental culture and developing new paradigms by creating sustainable solutions to environmental, social and economic needs of the mankind.

This is the first environment audit of college for doing their bit towards environmental protection and environmental awareness at local and global front. Audit criterion is environmental cognizance, waste minimization and management, biodiversity conservation, water conservation, energy conservation and environmental legislative compliance by the campus. A questionnaire is used during audit. This audit report contains observations and recommendations for improvement of environmental consciousness.

WASTE MANAGEMENT

TYPE OF WASTE ON COLLEGE CAMPUS

To create effective waste management plans, college first need to know the type of waste being generated at the campus. Below, we have compiled a list of various kinds of waste commonly generated on institutional campus:

1. **FOOD WASTE** - College campus generates food waste. The average mess and canteen generates approximately 10 kg of food waste a day. The reasons for food waste on an educational campus may be over purchasing food to ensure a sufficient supply and then throwing it away, especially in all hostel messes where plentiful stores are essential. And in the cafeteria or hostel mess, students may pile food onto their trays, find it unappealing once they sit down and dutifully scrape it into the garbage. Immediate attention is given to the food waste minimization techniques.

2. **RECYCLABLE PAPER, CARDBOARD, PLASTIC, GLASS AND CANS** - Campus tends to produce vast quantities of these recyclables. Even in the digital age, many students, professors and staff members still prefer handwritten notes and end up with piles of unwanted paper once their courses and projects are complete. And shipments of necessary items throughout the year are likely to arrive in recyclable plastic and cardboard packaging. The same is sold/auctioned to the scrap vendors time to time.

3. **STUDENT CLOTHES AND HOUSEWARES** - As we have mentioned above, many students find it more convenient to throw away their clothes and dorm furnishings at the end of the year than donate or recycle them. So, Vivekananda College has regular clothes donation and recycling drives in the campus

4. **E–WASTE** - Student and facility electronics often form a large portion of a campus's waste — As campus continually upgrade their computing facilities and office computers to keep up with the latest technology, the old computers have to go somewhere. So do old printers, phones, copy machines and other electronics that receive upgrades over the years. Discarded student electronics often become part of a campus's waste stream as well. Students may throw away old phones, TVs, tablets, laptops and printers, along with cords and other accessories. Recycling is a much more eco-friendly option — the metals in old electronics often have a high reuse value.

CHEMICAL WASTE - Chemical waste on a college campus may come from numerous sources. Campus laboratories generate waste chemicals, as do cleaning services. The detergents used in campus laundry rooms eventually become waste as well. Much of these chemical substances are hazardous waste under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and must undergo specific disposal processes according to state environmental rules and regulations.

5. **MAINTENANCE WASTE** - In the maintenance department, spent paints, solvents, adhesives and lubricants all form potentially hazardous waste. Because they are difficult to recycle, spent incandescent light bulbs usually become landfill waste. Spent fluorescent

light bulbs, which contain small amounts of mercury, typically require special handling because of the environmental and health risks they pose.

6. **BIOLOGICAL WASTE** - Biological waste from laboratories will require special handling and disposal as per BMW Rules, 2016. VIVEKANANDA COLLEGE has installed manyincinerators at different location to dispose BMW waste.

7. **FURNITURE** - Furniture waste on a college campus has a couple different sources. The campus itself may also get rid of old furniture as it modernizes its classrooms, cafeterias, computer labs and study spaces. Annually sold to junk dealer.

8. **BOOKS/MAGAZINES/NEWSPAPERS** - Books accounted for solid waste generation and institutions often generate tons of textbook waste. As courses upgrade to new editions, they may end up throwing their newly obsolete textbooks into the garbage if donation programs cannot use them. Students of Vivekananda College donates their text books and notes to junior students, or else are auctioned to reseller.

9. **C & D WASTE** - Due to expansion of campus building and renovation works result significant amount of construction and demolition waste that should be either used for backfilling or disposed off through authorised dumping site by CPCB/SPCB.

10. **SOLID WASTE** - The College is managing solid waste by providing it to the MCD.

11. **HORTICULTURE WASTE** – College campus has lavished greenery and grounds that results significant horticulture waste which is managed by in-house composting system.

ENERGY CONSERVATION

1. **List ten ways that you use energy in your institute. (Electricity, LPG, firewood, others). Using this list, try to think of ways that you could use less energy every day.**

A. Electricity

- *Lights, Fans, Air conditioners*
- *Lab equipment*
- *Computers in labs, faculty rooms & offices*
- *Cafeteria*

B. LPG
Ways to use less energy

- *Using Energy efficient appliances*
- *Switching off the electrical equipment when not in use*
- *Use of Air conditioners at optimum temperatures as per the utilizationschedule*
- *LED lights*

2. Are there any energy saving methods employed in your institute? If yes, please specify. If no, suggest some

- *LEDs installed*
- *Use of Air conditioners at optimum temperatures as per the class timetable*
- *Car pooling*
- *Solar panels installed*

3. How many CFL/LED bulbs has your institute installed?

Approx 14 % of Total Conventional bulbs and tubelights are replaced by LED Lights.

4. Do you run "switch off" drills at institute?

NO

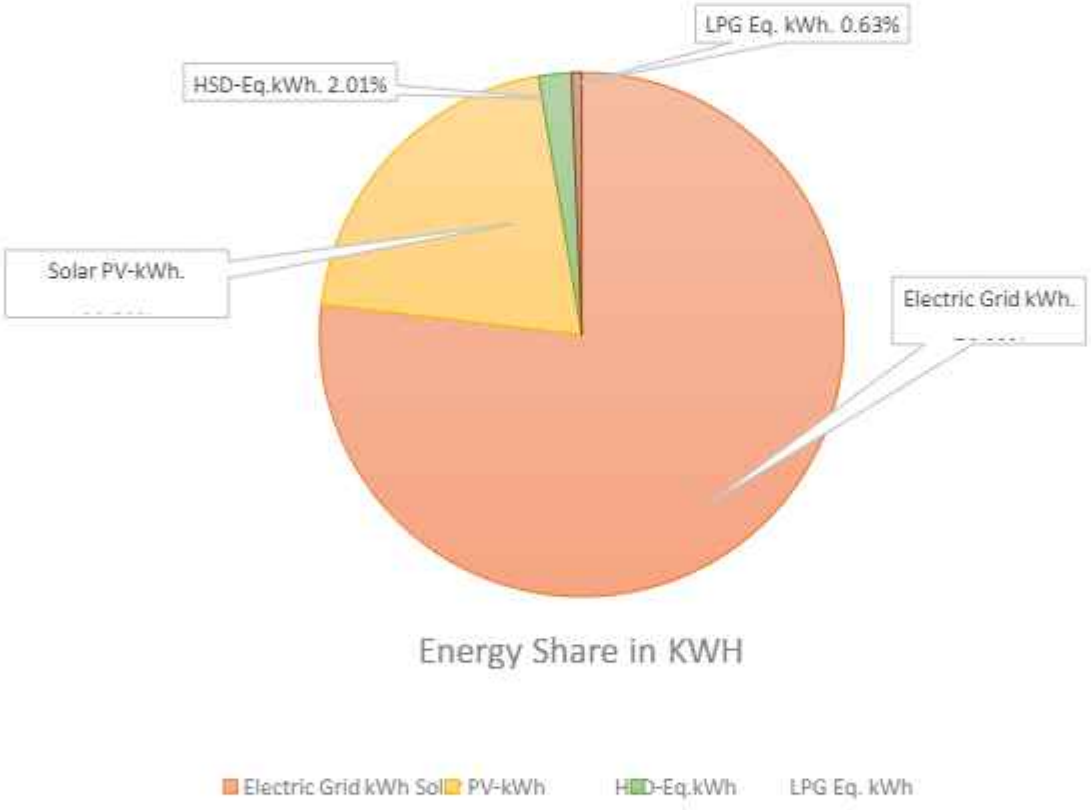
5. Are your computers and other equipment's put on power-saving mode?

Yes

6. Does your machinery (TV, AC, Computer, weighing balance, printers, etc.) run on standby modes most of the time? If yes, how many hours?

Yes, In office hours

Energy Share	kWh	Percentage
Electric Grid kWh	*181952.00*	76.83%
Solar PV-kWh	*48608.00*	20.52%
HSD-Eq. kWh	*4767.60*	2.01%
LPG Eq. kWh	*1500.70*	0.63%
Total -kWh	*236828.30*	*100%*



WATER AND WASTE-WATER

MANAGEMENT

1. List uses of water in your institute

Basic use of water in campus:

Drinking *– 74.84 KL/month*

Gardening *– 660.37 Kl/month*

Kitchen and Toilets *– 492.22 KL/month*

Others *– 176.73 KL/month*

2 How does your institute store water? Are there any water saving techniques followed in your institute?

Available total water storage is 90,000.

2 tanks of 5000 litres = 10,000 litres
10 tanks of 1000 litres = 10,000 litres

1 Underground tank of 50,000 litres = 50,000 litres
1 Overhead tank of 20,000 litres = 20,000 litres

**20% of water is being used for athlete track and hockey sports ground*
Saving Techniques

- *Avoid overflow of water-controlled valves are provided in water supplysystem.*
- *Close supervision for water supply system.*
- *Sensor based taps are installed*

3. Locate the point of entry of water and point of exit of waste water in your institute. (Entry and Exit)

Entry - Water comes from DJB and Borewell

Exit- From Canteen, Toilets, bathrooms and Labs through covered drainage which is connected to sewer

4. Write down ways that could reduce the amount of water used in your institute

Basic ways:

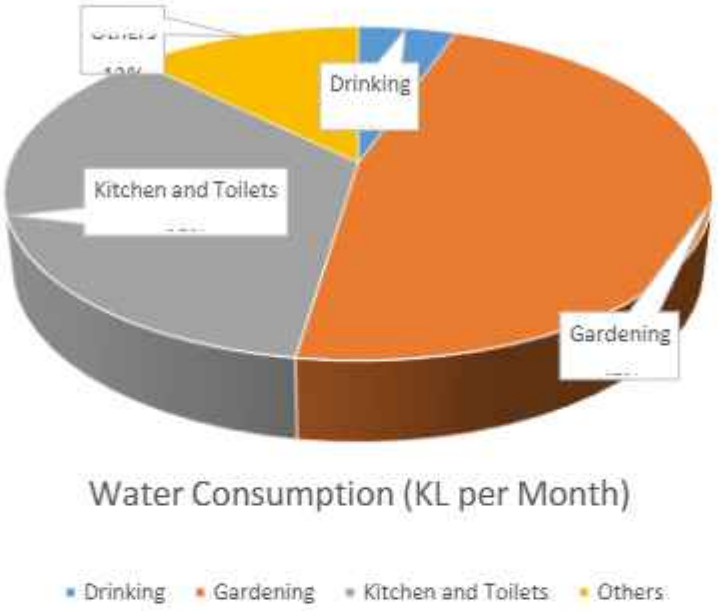
- *Close the taps after usage*
- *Water Conservation awareness for new students*
- *Maintenance and monitoring of valves in supply system to avoid overflow, leakage and spillage*
- *Sensor based taps and push tap are installed to save water*

5. Does your institute harvest rainwater?

The college has a rainwater storage system for better groundwater recharge. The stored water in this tank can be used for gardening purposes and supply to the running track.

6. Is there any water recycling System?

No



AIR QUALITY MANAGEMENT

1. Are the Rooms in Campus Well Ventilated?

Yes, as per National Building Code, guidelines

2. Window Floor ratio of the Rooms?

Very Good, ample daylight utilization because of big windows.

3. What is the ownership of the vehicles used by your campus?

There are no college owned vehicles.

4. Provide details of Institute-owned vehicles?

NA

5. PUC done?

NA

6. Specify the type of fuel used by your campus's vehicles

NA

8. Air Quality Monitoring Program (If, Any)

Monitoring of PM2.5 Concentration was carried out in college in 2018.

PM2.5 aerosols concentrations were measured with the help of the CSIR-National Physical Laboratory at a site in Vivekananda College, Delhi. PM2.5 sampler (PM2.5, model Envirotech, APM 550) is based on impactor design and is standardized by USEPA for ambient air monitoring.

ENVIRONMENT LEGISLATIVE COMPLAIANCE

1. Are you aware of any environmental Laws Pertaining to different aspects of environmental management?

Yes

2. Does your institute have any rules to protect the environment? List possible rules you could include.

Yes, Vivekananda College's- Eco club is conscious about the environment protection and takes proper measures in terms of awareness campaigns, activities, webinar, seminars, etc.

3. Does Environmental Ambient Air Quality Monitoring conducted by the Institute?

Yes

4. Does Environmental Water and Waste water Quality monitoring conducted by the Institute?

No

5. Does stack monitoring of DG sets conducted by the Institute?

No

6. Is any warning notice, letter issued by state government bodies?

No

7. Does any Hazardous waste generated by the Institute?

No

GENERAL INFORMATION

1. Does your institute have any rules to protect the environment? List possible rules you could include.

- *Periodic Plantation drive*
- *Ban on single use plastic*
- *Biodegradable waste management through Composting, solid waste management*
- *Water and energy conservation through posters*

2. Are students and faculties aware of environmental cleanliness ways? If Yes Explain

Yes. Vivekananda College creates awareness through ECO Club activities, Webinars, cleanliness drives in the community.

3. Does Important Days Like World Environment Day, Earth Day, and Ozone Day etc. eminent in Campus?

Yes, World Environment Day, Ozone Day, Earth Day, World water day, World wetland Day,Earth hour and more are celebrated by campus.

4. Does Institute participate in National and Local Environmental Protection Movement?

No

5. Does Institute have any Recognition or certification for environment friendliness?

Certificates are attached in annexure I

7. Does Institution conduct a green or environmental audit of its campus?

This is the first external audit carried out by the college.

INITIATIVES CARRIED OUT BY

COLLEGE

- The Vivekananda College, University of Delhi organises cleanliness drive under swatchhta pakhwara from 1st Aug – 15th Aug 2021. Under this drive, NSS volunteers clean the nearby areas and houses and took the step forward to make their locality clean and beautiful.

- The college organized a Best out of Waste activity under swatchhta pakhwara . The studentsfrom various colleges had participated in the event and helped to make it a great success.

- College organised "Paper Bag Campaign" from 1st July 2021 to 15th July 2021. In this campaign, volunteers prepared paper bags and gave them to medical stores or departmentalstores near to the house. The aim of this campaign was to reduce the use of plastic bags.

- College organised Poster Making Competition on the occasion of World Ozone Day 16th Sep.Theme for the competition was Ozone For Life.

- College celebrated Van Mahotsav from 27th to 31st July 2021.Under the Van Mahotsav,

theunit has organised three events – Vraksharopan, 5 days awareness drive and a pledge

RECOMMENDATIONS

- Eco-friendly parameters should be included in the purchase of articles and goods for thecampus.
- Car-pooling practices can be adopted by campus to minimise air pollution.
- The periodic maintenance schedule for renewable sources of energy to achieve optimisedefficiencies.
- Environmental Monitoring i.e. (Stack Monitoring of DG sets, Water monitoring need to beconducted periodically (as per DPCC).
- Agreement with third party authorised vendors should be done for different types of wastemanagement, such as BMW, paper waste, Plastic waste, etc.
- Increase the capacity of solar PV so that it can fulfil at least 70% of the electricityrequirement
- Reduce carbon emission by reducing the power consumption

CONCLUSION

This audit involved extensive consultation with all the campus team, interactions with key personnel on a wide range of issues related to environmental aspects. Overall, 65% of college campus is for landscaping. Vivekananda College is dedicated to promote the environment management and conservation in the campus and community. The audit has identified some suggestions for making the campus premise more environment friendly. The recommendations and suggestions are mentioned for campus to initiate actions.

The audit team opines that the overall site is well-maintained from environmental perspective. The recommendations in this report highlight many ways in which the college can work to improve its actions and become a more sustainable institution.

REFERENCES

- The Environment [Protection] Act – 1986 (Amended 1991) & Rules-1986 (Amended 2010)
- The Petroleum Act: 1934 – The Petroleum Rules: 2002
- The Central Motor Vehicle Act: 1988 (Amended 2011) and The Central Motor Vehicle Rules:1989 (Amended in 2005)
- Energy Conservation Act 2010.
- The Water [Prevention & Control Of Pollution] Act – 1974 (Amended 1988) & the Water (Prevention & Control of Pollution) Rules – 1975
- The Air [Prevention & Control Of Pollution] Act – 1981 (Amended 1987) The Air (Prevention & Control of Pollution) Rules – 1982
- The Gas Cylinders Rules – 2016 (Replaces the Gas Cylinder Rules – 1981
- E-waste management rules 2016
- Electrical Act 2003 (Amended 2001) / Rules 1956 (Amended 2006)
- The Hazardous Waste (Management and Handling and Trans-boundary Movement) Rules, 2008 (Amended 2016)
- The Noise Pollution Regulation & Control rules, 2000 (Amended 2010)
- The Batteries (Management and Handling) rules, 2001 (Amended 2010)
- Relevant Indian Standard Code practices

ENERGY AUDIT

The purpose of this Energy Audit was to seek opportunities to improve the energy efficiency of the Vivekananda College. Reducing the energy consumption despite improving the human comfort, health and safety were of primary concern.

Beyond just identifying the energy consumption pattern, this audit sought to detect and categorize the most energy efficient appliances. Additionally, some daily practices relating common appliances have been shared which may help reducing the energy consumption. Data collection for energy audit of the campus was carried out by the EHS Alliance Team. The Energy Audit Report accounts for the energy consumption patterns of the institution on actual survey and detailed analysis during the audit.

The work comprehends the area wise consumption traced using suitable equipment. The analysis was carried out by our team with the support of the staff members from Vivekananda College. The report provides a list of possible actions to preserve and efficiently access the available source, resources and their saving potential was also identified. We look forward towards optimization that the authorities, students and staff members would follow the recommendations in the best possible way. The report is based on certain generalizations including the approximations wherever necessary. The views conveyed may not reveal the general opinion. They merely represent the opinion of the team guided by the interviews of clients. We are happy to submit this Energy audit report to the Vivekananda College.

ENERGY AUDIT – ANALYSIS

1.ENERGY CONSUMPTION

To understand the Energy Consumption trends and for analyzing the average monthly consumption we have collected electricity energy bills from July 2021 to June 2022

The details of **"Meter Connection"** at **"Vivekananda College"** are as follows-

Name - The Principal Vivekananda College

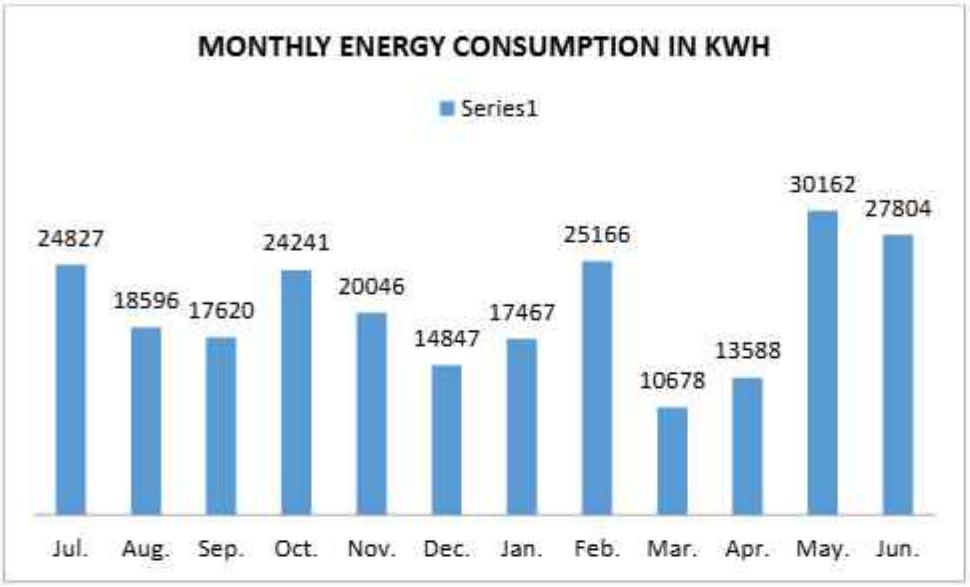
CA No. - 100013169

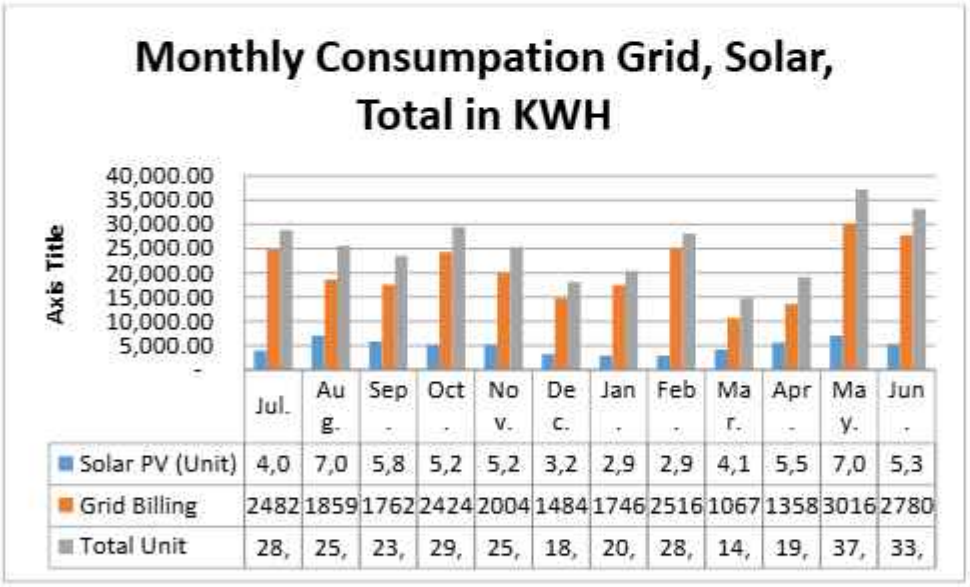
Summary of Monthly Electricity Consumption and Total Bill Amount

To understand the Energy consumption trend and for developing the baseline parameter we have collected monthly energy bill for the 12 months i.e. from July 2023 to June 2024

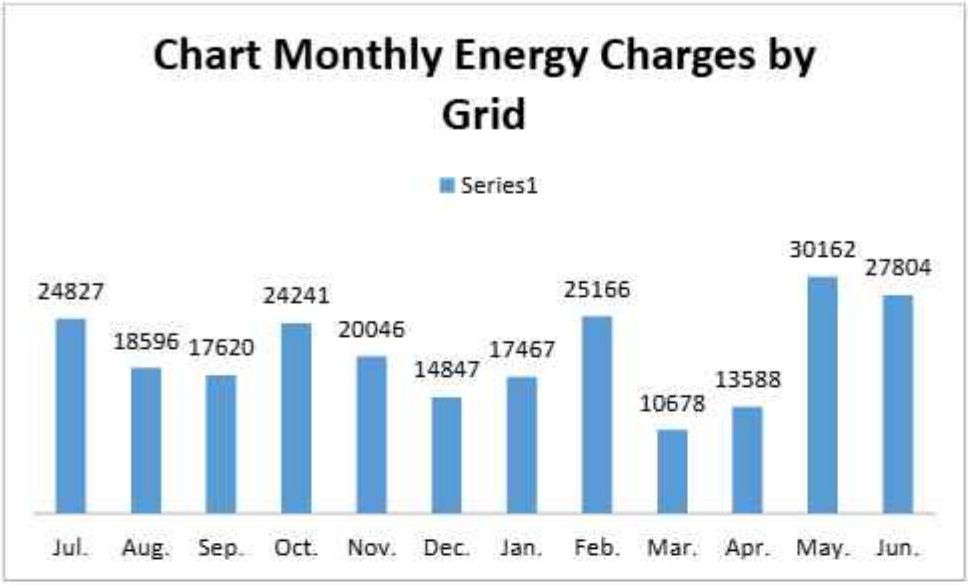
Summary of Monthly Electricity Consumption and Total Bill Amount (From July 2023 To June 2024)

Month	Year	Grid Billing	Rate	Amount	Solar PV (Unit)	Rate	Amount	Total Unit	Amount in INR
Jul.	2023	24827	8.50 + other Charges	375830.00	4,006.70	5.80	23239.00	28,833.70	399069.00
Aug.	2023	18596		291380.00	7,045.74		40865.00	25,641.74	332245.00
Sep.	2023	17620		267630.00	5,807.80		33685.00	23,427.80	301315.00
Oct.	2023	24241		368040.00	5,201.20		30167.00	29,442.20	398207.00
Nov.	2023	20046		310630.00	5,251.60		30459.00	25,297.60	341089.00
Dec.	2023	14847		245380.00	3,228.40		18725.00	18,075.40	264105.00
Jan.	2024	17467		279870.00	2,922.10		16948.00	20,389.10	296818.00
Feb.	2024	25166		401050.00	2,953.20		17129.00	28,119.20	418179.00
Mar.	2024	10678		188900.00	4,174.00		24209.00	14,852.00	213109.00
Apr.	2024	13588		228820.00	5,539.00		32126.00	19,127.00	260946.00
May.	2024	30162		479330.00	7,081.00		41070.00	37,243.00	520400.00
Jun.	2024	27804		429540.00	5,304.00		30763.00	33,108.00	460303.00
Total		**245042**		**3866400.00**	**58,514.74**		**339385.00**	**303,556.74**	**4205785.00**





	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.
Solar PV (Unit)	4,0	7,0	5,8	5,2	5,2	3,2	2,9	2,9	4,1	5,5	7,0	5,3
Grid Billing	2482	1859	1762	2424	2004	1484	1746	2516	1067	1358	3016	2780
Total Unit	28,	25,	23,	29,	25,	18,	20,	28,	14,	19,	37,	33,



2. DIESEL CONSUMPTION

Below is the diesel consumption details in litres from from July 2023 to June 2024.

Period	Diesel consumption (in litres)
Jul-23	16
Aug-23	00
Sep-23	00
Oct-23	00
Nov-23	00
Dec-23	00
Jan-24	00
Feb-24	00
Mar-24	00
Apr-24	00
May-24	00
Jun-24	00
Total	**16**

ANALYSIS OF DG SETS

In the campus, there is only one Diesel Generator (DG) set for its electrical power needsin case of Grid power failure. DG sets capacity is 200 kVA.

DG Set Design Details		
Description	***Unit***	***DG at Station 1***
Rated capacity	kVA	200 KVA
Hz		50
Sl No.		21/03/2009/1294
Make		Kirloskar
Volts	Volts	415 Volts
PF		0.8
Phase		3 Phase
RPM		1500
Amps	Amps	385
Mfg.		Mar, 2009

DG Set Operation details		
Operating hours during testing	Hours	0.50
% Loading	%	62.37
Energy Generation	kWh	33.64
Load	kVA	92.81
Fuel consumption during testing	Litre	8
Specific energy generation	kWh/litre	3.24

Observation and Suggestions:-

Soundproof silent generators are an efficient tool to keep both noise and vibration at low levels. For the power backup of the institution, the soundproof model is installed near Gate no. 2 of the institution.

As per the trial taken during the energy audit the percentage loading of DG set is 62.37% which is ok and specific energy consumption of DG Sets 3.24 kWh/Litre which is satisfactory because as per manufacturer recommendation, best practices for SEC in DG sets range from 3.0 to 3.5 kWh/Litre and above.

We recommend college to initiate stack monitoring of DG set through authorized lab.

4. AC SYSTEM

Energy Efficiency Ratio (EER): Performance of smaller chillers and rooftop units is frequently measured in EER rather than kW/ton. EER is calculated by dividing a chiller'scoolingCapacity (in Btu/h) by its power input (in watts) at full-load conditions. The higher the EER, the More efficient the unit. The cooling effect produced is quantified as tons of refrigeration (TR). The above TR is also called as air-conditioning tonnage.

There are Split ACs installed in Vivekananda College in various areas of various capacity which detail is given below:-

Details of Air conditioners

Room no.	Place	Split 1.5 Ton	Split 2 Ton	Window 1.5 Ton	Window 2 Ton	Total
1	Staff Room	4	2	2	0	8
2	Office Admn. & Accounts	4	0	3	0	7
3	Sr. P A, Conference & Principal Room	0	0	2	2	4
5	Computer lab	0	3	0	0	3
	Server Room	0	0	2	0	2
10	Lab.10	0	0	2	0	2
14	Sharda Hall	0	6	0	0	6
15	Sports Room	2	0	0	0	2
	Sports Ground Changing and Coach Room	3	0	0	0	3
29	Library	3	0	3	0	6
30	Computer lab	0	2	0	0	2
31	Computer lab	0	0	2	0	2
40	Old Comp. Lab	3	0	2	0	5
57	F T Lab	0	0	2	0	2
57A	Chemistry lab	0	5	0	0	5
58	F T Office	1	0	1	0	2
61A, 62 & 68	Applied Psy. Dep.	1	0	2	0	3
65 & 69	Music Dept.	1	0	1	1	3
	G. Total	**22**	**18**	**24**	**3**	**67**

Remarks: - We have checked Energy Efficiency Ratio of AC's and EER of AC's is fairly OK. But in future you should purchase 5-Star rated invertor based split AC's because power consumption of Inverter based BEE 5-Star rated AC's is less than non-star rated AC's.

Also, we recommend Vivekananda College to organize periodic maintenance schedule and take corrective actions for insulating of AC's refrigerant lines in order to protect energy losses.

5. FANS Details

In the Vivekananda College, there are 541 fans installed, all are ceiling fans of 60W. Theobservation and suggestion are given below.

Sl No.	Location/Identification	Ceiling Fan-60W	Ceiling Fan-120W
1	Administration and Account	20	
2	Staff Room	10	
3	Old Academic Buildig GF	45	
4	Old Academic Buildig FF	44	
5	Old Academic Buildig SF	80	
6	New Academic Buildig GF	39	
7	New Academic Buildig FF	28	
8	New Academic Buildig SF	25	
9	New Academic Buildig TF	21	
10	Small Auditorium	10	
11	Sports Room	7	
12	Canteen	7	
13	Computer Labs (Room 5, 10, 30, 31 and server room)	27	
14	Library	58	
	15. Wall Fan New Academic block 15roomm*8	120	
	Total	541	

Other fan details

Observation and Suggestions:-

In the college, all the ceiling fans are of 60 W but BEE 5 Star Rated of 30W Ceiling Fans are present in the market. But the pay-back period for new BEE 5 star rated fans is longer, so we

don't recommend to replace to BEE 5 Star rated 30W fans.

6. ANALYSIS OF LIGHTING SYSTEM

Brief description of existing system

For assessing energy efficiency of lighting system, Inventory of the Lighting System has been noted / collected, with the aid of a lux meter, measurement and documentation of the lux levels at various locations at working level has been done.

Inventory of Lighting

Sl. No.	Location/Identification	200W-LED High Mast	10W LED	36W Tube lights	20W LED
1	Sports Ground	8			
2	Garden	8			
3	Open Stage	24			
4	Administration and Account			48	16
5	Staff Room				31
6	Old Academic Building GF			76	22
7	Old Academic Building FF			84	
8	Old Academic Building SF			78	
9	New Academic Building GF			53	
10	New Academic Building FF			53	
11	New Academic Building SF			45	
12	New Academic Building TF			45	
13	Small Auditorium			5	
14	Sports Room			10	
15	Canteen		5	1	
16	Computer Labs (Room 5, 10, 30, 31 and server room)			42	6

17	Library			180	
18	Big Auditorium			20	
19	**Total**	**40**	**5**	**740**	**75**

Observation

College has initiated LED based lighting solution, but still there are 740 (36W) tube lights. LEDs save energy, the life span is much greater and emit virtually no heat. We recommend to replace the tube lights with LEDs.

Additionally, we recommend to install motion sensor-based lights in common areassuch as library, washrooms, corridors, etc.

We also recommend to use solar lights for open areas like parking, ground, street lights, etc. Table below shows the performance characteristics comparison of all luminaries.

OTHER POWER CONSUMPTION

Inventory of IT Infrastructure

Location/Identification	Computer Lab	Administration, Accounts, Library
Desktop	124	50
Laptop	26	2
Printers	6	27
Scanners	2	6
Servers	1	2

Water pump details

Sr. No.	Description	Unit	Pump No.-1	Pump No.-2
1	Rated Power of Motor	KW	3.7	2.3
2	Motor Eff.	%	49	49
3	Discharge Head	M	62	50
4	Suction Head	M	75	62
5	Pump Type	Submersible /Monoblok /Centrifugal Etc.	Monoblok	Monoblok

Exhaust fan details

60W Exhaust Fan	12
500W Water Coolers	9
800W Microwave	2
1000W Refrigerators	7
1200W Xerox Machine	3

ANALYSIS

There should be regular maintenance schedule of equipment like pumps, exhaust fans and IT equipment. Electronics such as computers, printers, scanners, etc. more than 3 year or 5 years (as per their life) should be replaced with new computers/laptops. Ideal Temperature should be maintained for all electronic appliances.

******* END OF THE REPORT ********

Plant Audit

A plant audit was done by the college staff to know the number and location of plants in the college campus. Some teachers and gardeners of the institution participated in this audit programme. The audit result suggested that the campus has approximately 46 different species of trees. The number of different species is different and they vary from 1 to 35.China palm has been observed with a maximum number of trees (35) followed by Ashoka tree (30). Total 312 trees were counted in the campus of the institution. The current status of each species has been shown in Table.1.

Figure1. Plants diversity in Vivekananda College campus

GENERAL INFORMATION

1. Does any Green Audit conducted earlier?

No, this is the first external audit organized by the College

2. What is the total strength (people count) of the Institute?

Students

Male: 0 Female: 2463 Total: 2463

Teachers (including guest faculty)

Male: 24 Female: 67 Total: 91

Non-Teaching Staff

Male: 49 Female: 2543 Total: 2592

3. What is the total number of working days of your campus in a year?

There are one hundred eighty working days in a year.

4. Where is the campus located?

The campus is located in Vivek Vihar, Delhi, 110095

5. Which of the following are available in your institute?

Garden area	Available
Playground	Available
Kitchen	Available
Toilets	Available
Garbage Or Waste Store Yard	Available
Laboratory	Available
Canteen	Available

6. Which of the following are found near your institute?

Municipal dump yard	Not in vicinity of institute
Garbage heap	No Garbage heaps
Public convenience	Public convenience is available
Sewer line	Approximately 1.5 KM sewer line within campus
Stagnant water	No stagnant water
Open drainage	No
Industry – (Mention the type)	No
Bus / Railway station	Vivekananda College, Bus Stop (Near Gate No. 1 & 2)

WASTE MINIMIZATION AND RECYCLING

1. Does your institute generate any waste? If so, what are they?

Yes, Solid waste, Canteen waste, paper, plastic, horticulture, laboratories waste, e-waste, etc.

2. What is the approximate amount of waste generated per day? (in Kg approx.)

Biodegradable waste - 15 Kg
Non-biodegradable waste -5 Kg
Hazardous Waste - 0 Kg

Others < 1 Kg

3. How is the waste managed in the institute? By Composting, Recycling, Reusing, Others (specify)

- *Composting is done for horticulture waste management and food waste management through pit composting, bin composting and composting machine.*
- *Rain water is being stored in a large underground tank and is used for gardening purpose*
- *E-waste collection and management through recycled – authorized vendor*

4. Do you use recycled paper in institute?

No

5. How would you spread the message of recycling to others in the community?

Following are the ways through which college is spreading the awareness about recycling

- *Waste plastic collection drives*
- *Installation of Dustbins for waste plastic collection, e-waste collection and recycling*
- *Installation of incinerator for managing BMW*
- *Tie-ups with e-waste collection agency*
- *Webinars and seminars*

6. Can you achieve zero garbage in your institute? If yes, how?

Not yet achieved. Possible through waste management policy and planning.

1. Minimization of waste production
2. Workshops & Trainings on Waste management

GREENING THE CAMPUS

1. Is there a garden in your institute?

Yes, about 15202 SQM areas are developed as Gardens.

2. Do students spend time in the garden?

Yes, students spend around 2-4 Hours during winters.

3. Total number of Plants in Campus?

Plant type with approx. count

Full grown Trees	*312*
Small Trees	*104*
Hedge Plants	*2852*
Grass Cover sqm	*26205.14 Sqm*

Below are details of plantation

S. No.	Plants	Total number of plants	Plant with name-plate	Location
1	Amaltas	13	1	Parking, Sharda, Gate 2 &1 parking
2	Ashoka lorgiphala	14 33	1	Herbal Garden, Open Stage, Gate 2, Vivekananda Auditorium
3	Banana	3	0	Herbal Garden, Gate 2
4	Banyan Tree (ficus benghalensis)	2	1	Sports Ground
5	Blackberry (rubus)	14	5	Gate 1, 2, Staff Quarters, Vivekananda Auditorium, Sharda Hall
6	Bottle Brush Tree	3	2	Parking, Sharda Hall
7	Bottle Palm	22	0	Gate 4, 2, Vermicomposting site, Vivekananda Auditorium
8	Cassia siamia	1	1	Parking
9	Champa/ Plumeria	43	3	Gate 1, Vivekananda Auditorium, Sharda Hall, Garden-Gate 2
10	China Palm (Livistona chinesis)	25	5	Vivekananda Auditorium, Parking, Gate 2, Sharda Hall
11	Curry tree	2	1	Garden-Gate 2
12	Cycas revoluta (sago palm)	3	1	Gate 2
13	Date palm	3	1	Gate 1, Parking
14	Drumstick tree	2	1	Near Synthetic Track
15	Fish tail palm	11	1	Sharda Hall
16	Guava	12	1	Gate 1 Principal house, gate3,sport
17	Gular (ficus resmosa)	2	1	Near Synthetic Track, Sharda Hall

18	Gulmohar (delonix regia)	7	1	Gate 2, Staff Quarters
19	Hibiscus	26	1	Gate 1, 2, Garden-Gate 2
20	Jack fruit	3	2	Gate 2, Staff Quarters
21	Kabuli kikar (prosopis juliflora)	2	0	Sports Ground
22	Kalp vriksh	1	1	Principal Bungalow
23	Lemon tree	4	0	Gate 2, Staff Quarters
24	Maror Fali (Helicteres isora)	2	1	Near Vivekananda Auditorium, Canteen
25	Maulsari	12	2	Gate 2,Gate 1 Parking
26	Naval orange	1	1	Open Stage
27	Neem	16	2	Gate 1, Behind Vivekananda Auditorium, Sports Ground, Sharda Hall, Staff Quarters
28	Peepal (ficus religious)	8	0	Near Synthetic Track, Gate 2, 3
29	Pilkhan (white fig)	1	1	Gate no 2
30	Pome granate	1	1	Gate 1
31	Purple diamond (loropetalun Chinese)	12	0	Gate 1, Parking
32	Wood apple	8	1	Canteen, Vivekananda Auditorium Sport ground
33	Mango	12	0	Staff Quarters, Gate 2, Garden-Gate 2
34	Mahua	3	2	Vivekananda Auditorium
35	Foxtail palm	13	3	Vivekananda Auditorium, Gate 1&2
36	Seeba	1	0	Gate 1
37	Muchkan Champa	1	0	Staff Quarters
38	Alstonia	2	2	Gate 2
39	Tikoma	3	1	Staff Quarters& Gate-2
40	Papdi	2	0	Gate 1, Synthetic Track
41	Arzun	6	1	Gate 1, 3, Vivekananda Auditorium, Green house
42	Balam Kheera	5	1	Staff Quarters, Sports Ground
43	Sheesam	1	0	Gate 2
44	Kadam	4	1	Open Stage, Garden-Gate 2
45	Parijaat	2	1	Staff Quarters
46	Semal	2	2	Staff Quarters, Sports Ground
47.	Terminialia	1	-	New Building front
48.	Amala	1		Near Green house

4. Is the College campus having any Horticulture Department? (If yes, give details)

Yes, Total 5 staff (maali) deployed in horticulture department

5. How many Tree Plantation Drives organized by campus per annum?

Two Plantation Drives are Organized by campus in the last FY.
Survival rate is more than 85%.

6. Is there any Plant Distribution Program for Students and Community?

No

8. Is there any Plant Ownership Program?

No

WATER AND WASTEWATER MANAGEMENT

1. List uses of water in your institute

Basic use of water in campus:

Drinking *– 74.84 KL/month*

Gardening *– 660.37 Kl/month*

Kitchen and Toilets *– 492.22 KL/month*

Others *– 176.73 KL/month*

Hostel *– 0 KL/Month*

2. How does your institute store water? Are there any water saving techniques followed in your institute?

Available total water storage is 90,000.

2 tanks of 5000 litres = 10,000 litres

10 tanks of 1000 litres = 10,000 litres

1 Underground tank of 50,000 litres = 50,000 litres

1 Overhead tank of 20,000 litres = 20,000 litres

**20% of water is being used for athlete track and hockey sports ground.*

- *Close supervision for water supply system.*
- *Sensor based taps are installed*
- *Water Conservation awareness for new students*
- *Sprinklers usage for gardening and grass cover*

3. Locate the point of entry of water and point of exit of waste water in your institute.

Entry *- Water comes from Delhi Jal board and borewell*

Exit*- From Canteen, Toilets, bathrooms and Labs through covered drainage which is connected to sewage*

4. Write down ways that could reduce the amount of water used in your institute

Basic ways:

- *Close the taps after usage*
- *Water Conservation awareness for new students*
- *Maintenance and monitoring of valves in supply system to avoid overflow, leakage and spillage*
- *Sensor based taps and push tap are installed to save water*
- *Water recycling and use of sprinklers for gardening*

ANIMAL WELFARE

1. List the animals (wild and domestic) found on the campus (dogs, cats, squirrels, birds, insects, etc.)

Hundreds of Birds, 5-6 dogs, 5-7 Cats, around 30+ Squirrels and 20+ butterfly species are found in campus. A variety of bird's species and other flora and fauna are available, so institute is doing their bit for bio diversity conservation.

2. Does your institute have a Biodiversity Program or a KARUNA CLUB?

Yes, Vivekananda College's ***Eco club*** *actively organizes awareness through various campaigns and activities including seminars, poster competition, etc.*

CARBON FOOTPRINT - EMISSION & ABSORPTION

1. Electricity used per year - CO2 emission from Electricity

(electricity used per year in kWh/1000) x 0.84
18165 kWh/1000 x 0.84

= 18165/1000x0.84

= 48.68 tons

2. LPG/PNG used per year - CO2 emission from LPG/PNG

(LPG/PNG used per year in KG) x 2.99
215 x 2.99

=215 x 2.99

=0.64 tons

3. Diesel used per year CO2 emission from HDS (Diesel)

(Diesel used per year in litres) x 2.68

=435 x 2.68

= 435 x 2.68

4. Transportation per year (car) CO2 emission from transportation (Bus and Car)

There are no college owned vehicles, so no Co2 emission.

Total CO2 emission per year cumulative by electricity usage + bus and car is 155.44 tons

CARBON ABSORPTION BY FLORA IN THE INSTITUTION

There are 312 full grown trees and 104 semi grown trees of different species, on the campus spread over 10 acres.
Carbon absorption capacity of one full grown tree 22 kg Co2 Therefore Carbon absorption capacity of 312 full-grown trees 312 x 22 kg Co2 = 6.86 tons of Co2.

The carbon absorption capacity of 104 semi-grown trees is 50% of that of full-grown trees. Hence the carbon absorption 104 x 6.8 kg of Co2 = 0.71 tons of Co2

There are approximately Hedge Plants 2852 of various species being raised in the gardens and grown in the areas where no buildings are built Carbon absorption of bush plants varies widely with their species. Certain bushes absorb very high level of Co2 where as some others absorb very low level of Co2. In the absence of a detailed scientific study, 200g of Co2, absorption is taken per bush (in consultation with Environmental Science specialists). Based on this, total carbon absorption of bushes is 2852 x 200 g = 0.57 ton of Co2

The lawns on the campus have buffalo grass, Mexican grass and indigenous grass species and cover a total area of 282069.78 sq. ft. Carbon absorption capacity of a 10 sq. ft. area of lawn is 1 g per day Therefore, carbon absorption by lawn area 282069.78 x 365 x 0.1 g Co2 = 10.30 tons Co2 per year.
Grand total of carbon absorption capacity of the campus is 18.44 tons.

GREEN INITIATIVES BY CAMPUS

- **Solid Waste Management**
  - The institution has two functional compost pits for organic solid waste management.
  - There is ban on single use plastic and plastic crockery in the campus.

- **E-waste Management**
  - College has a separate storeroom for the safe storage of electronic waste. After a certain interval of time college disposes of the E-waste to concerned agencies through the auction process.

- **Rain water harvesting**
  - The central area of the new building of college has a rainwater harvesting system for better groundwater recharge. The stored water in this tank can be used for gardening purposes and supply to the running track.

- **Renewable Energy**
  - The college has also installed approximately 162 solar panels (50 KW) on the rooftop of new and old buildings.
  - The College is using solar lights for street lights.

- **Greening the campus**
  - The college campus has approximately 46 different species of trees. The number of different species is different and they vary from 1 to 35. China palm has been observed with a maximum number of trees (35) followed by Ashoka tree (30). Total 312 trees were counted in the campus of the institution.
  - Two plantation drives were carried out in the current year in the Campus.
  - Plants survival rate is around 85%
  - A greenhouse has been established in the college premises to maintain greenery in the campus.

- **Air Pollution Reduction**
  - Personal Vehicles (Students) are not allowed in the campus
  - College is monitoring air quality through monitoring of $PM_{2.5}$ Concentration

- **Environment Committee Initiatives** – Vivekananda College has eco club. Below are the highlights of their work on environment cautiousness.

  - The Vivekananda College, University of Delhi organises cleanliness drive under swatchhta pakhwara from 1st Aug – 15th Aug 2021. Under this drive, NSS volunteers clean the nearby areas and houses and took the step forward to make their locality clean and beautiful.

- The college organized a Best out of Waste activity under swatchhta pakhwara . The students from various colleges had participated in the event and helped to make it a great success.

- College organised "Paper Bag Campaign" from 1st July 2021 to 15th July 2021. In this campaign, volunteers prepared paper bags and gave them to medical stores or departmental stores near to the house. The aim of this campaign was to reduce the use of plastic bags.

- College organised Poster Making Competition on the occasion of World Ozone Day 16th Sep. Theme for the competition was Ozone For Life.

- College celebrated Van Mahotsav from 27th to 31st July 2021.Under the Van Mahotsav, the unit has organised three events – Vraksharopan, 5 days awareness drive and a pledge.

CONCLUSION

This audit involves considerable team discussions and meetings with key staff members on a variety of environmental-related topics. The eco club of Vivekananda College promotes conservation of resources.

Overall 65% of Vivekananda College is for landscaping. The college makes a significant effort to act in an environmentally responsible manner and takes into account the environmental effects of the majority of its activities. The recommendations in this report suggests some more ways in which the college can work to improve its practices and develop into a more sustainable institution.

It's important to begin a few things, such as increasing Solar PV capacity, initiating drip irrigation and checking the water flow from the taps. Additionally, we strongly advise installing water metres at each building/block and water balancing report.

REFERENCE

- The Environment [Protection] Act – 1986 (Amended 1991) & Rules-1986 (Amended 2010)
- The Petroleum Act: 1934 – The Petroleum Rules: 2002
- The Central Motor Vehicle Act: 1988 (Amended 2011) and The Central Motor Vehicle
- Rules:1989 (Amended in 2005)
- Energy Conservation Act 2010.
- The Water [Prevention & Control Of Pollution] Act – 1974 (Amended 1988) & the Water (Prevention & Control of Pollution) Rules – 1975
- The Air [Prevention & Control Of Pollution] Act – 1981 (Amended 1987) The Air (Prevention & Control of Pollution) Rules – 1982
- The Gas Cylinders Rules – 2016 (Replaces the Gas Cylinder Rules – 1981
- E-waste management rules 2016
- Electrical Act 2003 (Amended 2001) / Rules 1956 (Amended 2006)
- The Hazardous Waste (Management and Handling and Trans-boundary Movement) Rules, 2008 (Amended 2016)
- The Noise Pollution Regulation & Control rules, 2000 (Amended 2010)
- The Batteries (Management and Handling) rules, 2001 (Amended 2010)
- Relevant Indian Standard Code practices

ANNEXURE – PHOTOGRAPHS OF ENVIRONMENT CONSCIOUSNESS

********** END OF THE REPORT **********

Table 1. Plant Name, Number and Location

S.No.	Plants	Total number of plants	Plant with name-plate	Location
1	**Amaltas**	12	1	Parking, Sharda, Gate3
2	**Ashoka**	30	0	Herbal Garden, Open Stage, Gate2, Vivekananda Auditorium
3	**Banana**	3	0	Herbal Garden, Gate2
4	**Banyan Tree (ficusbenghalensis)**	2	1	SportsGround
5	**Blackberry (rubus)**	14	5	Gate 1, 2, Staff Quarters, Vivekananda Auditorium, Sharda Hall
6	**Bottle Brush Tree**	3	2	Parking, Sharda Hall
7	**Bottle Palm**	22	0	Gate 4, 2, Vermicomposting site,Vivekananda Auditorium
8	**Cassia siamia**	1	1	Parking
9	**Champa/ Plumeria**	29	3	Gate 1, Vivekananda Auditorium, Sharda Hall, Garden-Gate 2
10	**China Palm (Livistonachinesis)**	35	5	Vivekananda Auditorium, Parking, Gate 2, Sharda Hall
11	**Curry tree**	2	1	Garden-Gate 2
12	**Cycas revoluta (sago palm)**	3	1	Gate2
13	**Date palm**	3	1	Gate 1, Parking
14	**Drumstick tree**	3	1	Near Synthetic Track
15	**Fish tail palm**	11	1	Sharda Hall
16	**Guava**	8	1	Gate1
17	**Gular (ficusresmosa)**	2	1	Near Synthetic Track, Sharda Hall
18	**Gulmohar (delonix regia)**	6	1	Gate2, StaffQuarters
19	**Hibiscus**	26	1	Gate1, 2, Garden-Gate 2
20	**Jack fruit**	3	2	Gate 2, Staff Quarters
21	**Kabuli kikar (prosopisjuliflora)**	2	0	SportsGround
22	**Kalpvriksh**	1	1	PrincipalBungalow
23	**Lemon tree**	4	0	Gate 2, Staff Quarters
24	**Maror Fali (Helicteresisora)**	2	1	Near Vivekananda Auditorium, Canteen
25	**Maulsari**	4	2	Gate2
26	**Naval orange**	1	1	Open Stage
27	**Neem**	15	2	Gate1, Behind Vivekananda Auditorium, Sports Ground, Sharda Hall, Staff Quarters
28	**Peepal (ficus religious)**	6	0	Near SyntheticTrack, Gate 2, 3
29	**Pilkhan (white fig)**	1	1	Gate no2
30	**Pome granate**	1	1	Gate1
31	**Purple diamond (loropetalun Chinese)**	12	0	Gate 1, Parking
32	**Wood apple**	8	1	Canteen, Vivekananda Auditorium
33	**Mango**	12	0	Staff Quarters, Gate 2, Garden-Gate 2
34	**Mahua**	3	2	Vivekananda Auditorium

35	**Foxtail palm**	11	3	Vivekananda Auditorium, Gate 1
36	**Seeba**	1	0	Gate 1
37	**MuchkanChampa**	1	0	Staff Quarters
38	**Alstonia**	2	2	Gate 2
39	**Tikoma**	1	1	Staff Quarters
40	**Papdi**	2	0	Gate 1, SyntheticTrack
41	**Arzun**	5	1	Gate 1, 3, Vivekananda Auditorium, Green house
42	**BalamKheera**	3	1	Staff Quarters, SportsGround
43	**Sheesam**	1	0	Gate 2
44	**Kadam**	4	1	Open Stage, Garden-Gate 2
45	**Parijaat**	1	1	Staff Quarters
46	**Semal**	2	2	Staff Quarters, SportsGround

Energy Conservation

Most of the college rooms are well ventilated which facilitates energy exchange and provide a cooling effect during the summer months. Moreover, the glass window of the classroom facilitates heating during the winter months. Good availability of natural light and cross-ventilation in the classrooms of the college is able to minimize the use of electric lighting, air-conditioning etc. Many awareness activities related to energy conservation has been organized among the college students. The college has also installed approximately 162 solar panels on the rooftop of new and old buildings. The details of monthly production of solar electricity, import/export to BSES and consumption of electricity from July 2020 to June 2021 has been shown in Table.2.

Table. 2 Detail of production of solar electricity, import from BSES, export to BSES and consumption of electricity from July 2020 to June 2021

Month	Year	Electricity Produced (Solar)	Electricity Import From BSES	Electricity Export to BSES	Electricity Consumption
		A	B	C	A+B-C
Jul.	2023	4,006.70	25672	83	29,595.70
Aug.	2023	7,045.74	18942	138	25,849.74
Sep.	2023	5,807.80	18187	129	23,865.80
Oct.	2023	5,201.20	24826	359	29,668.20
Nov.	2023	5,251.60	20156	110	25,297.60
Dec.	2023	3,228.40	15123	276	18,075.40
Jan.	2024	2,922.10	17516	49	20,389.10
Feb.	2024	2,953.20	25186	20	28,119.20
Mar.	2024	4,174.00	10786	108	14,852.00
Apr.	2024	5,539.00	13918	330	19,127.00
May.	2024	7,081.00	29937	261	36,757.00
Jun.	2024	5,304.00	26587	53	31,838.00
Total		**58,514.74**	**246836**	**1916**	**3,03,434.74**

The institute has produced a significant amount of solar electricity which varies from 14-19% monthly of the total electricity required by the college. In the month of July 2020, In the month of January 2024 it generated only 2922.10 kw however of the total electricity demand of the

institution for that period 20389.10 KW .For the entire period (July 2023- June 2024), solar energy provides approximately 19% of the total electricity demand by the college.

In the last academic session (July 2023-June 2024) highest consumption has been observed in the month of June 2024 (31838 kWh), while the lowest in the month of March 2024 (14852 kWh) (Fig.2a).

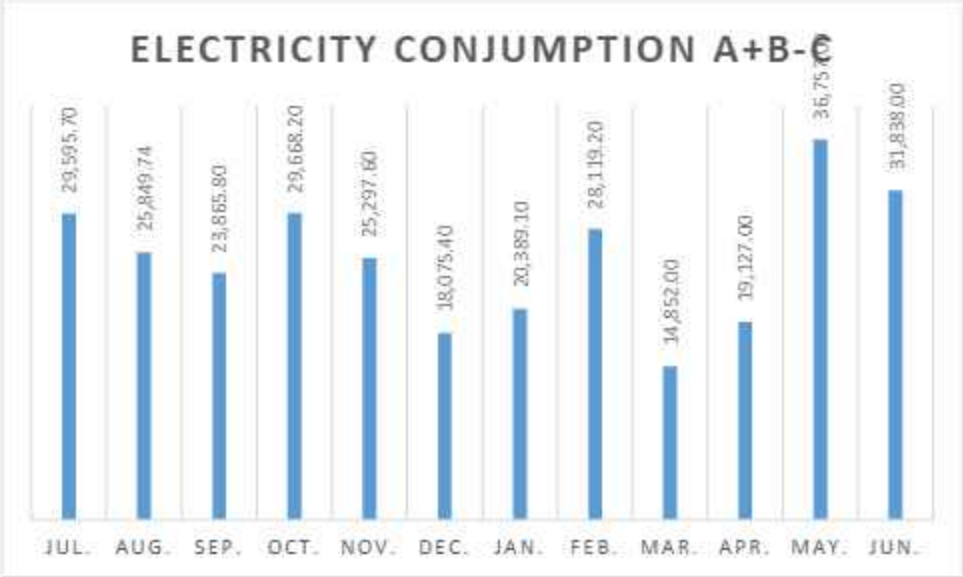


Figure 2a. Electricity consumption in the institution in different months.

The solar electricity produced with the help of solar panels has been shown in Fig.2b. The highest production has been observed in the month of May 2024 and the lowest in the month of June 2024.

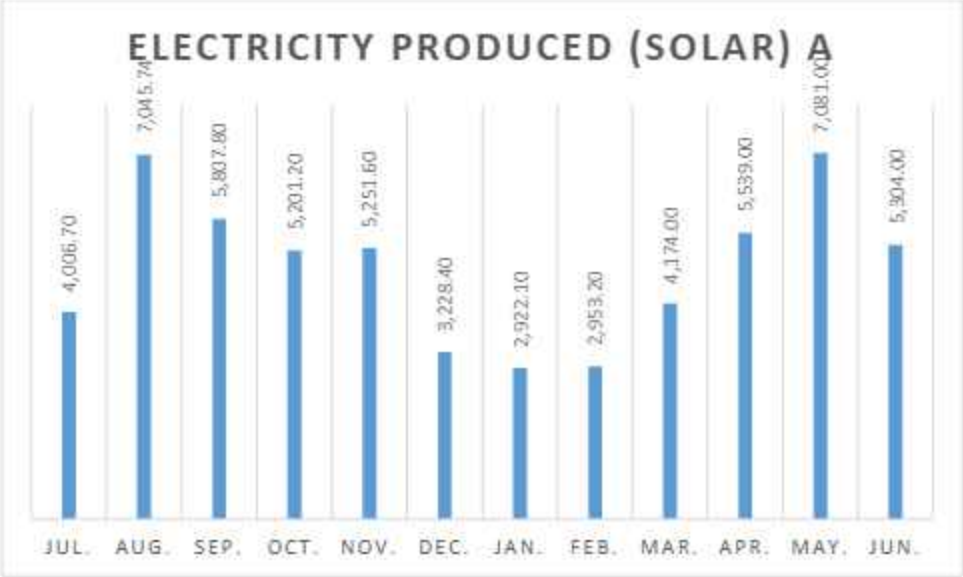


Figure 2b. Electricity produces by solar panels during different months.

The institute has also exported electricity to the BSES. The monthly export electricity has been shown in Fig. 2c. The highest electricity export has been done in the month of October 2023 (359 kWh) while the lowest export in the month of February 2024 (20 kWh).

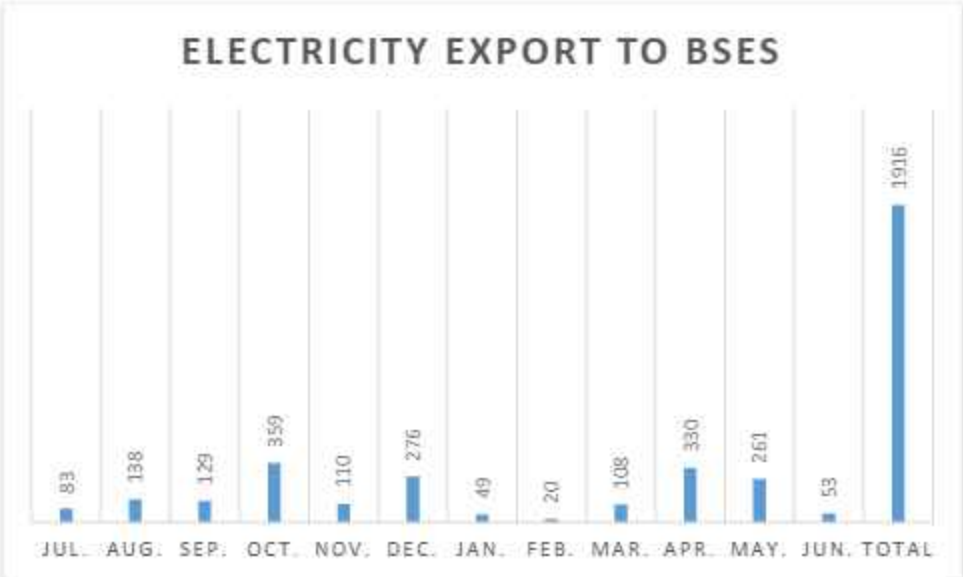


Figure 2c. Electricity export to BSES during different months.

LED lights

In addition, College administration is increasingly shifting to the use of LED lights. Shifting to LED is another very important step to reduce the load on conventional energy resources.

LED light bulbs are light-emitting diodes (LEDs) that are significantly more energy-efficient than equivalent incandescent lamps. Incandescent bulbs produce light using electricity to heat a metal filament, as a result, in incandescent bulbs a large amount of energy (up to 90%) is releasedin the form of heat. Whereas LEDs emit unidirectional light and release very little energy (up to 5%) in the form of heat. As a result,LED lights are up to 80% more efficient than fluorescent and incandescent lights.

The institute has installeda total of 40 LEDlights (250 watts each) inside the campus. Geotagged image of one LED light pole has been shown below. Total 5 LED poles installed in the month of July 2020, and each pole carries 8 LED lights (Figure.3).

Figure 3. LED lights inside the college campus

Save awareness initiative taken by the college and teachers to make students aware of electricity conservation. The institution has also posted several banners/posters inside the campus to make students aware and reduce electricity demand (Fig.4).

4. Awareness to use stairs and save electricity

Water Conservation

The monthly water demand of the institution varies from 00 KL to 606 KL. A monthly variation graph of the water consumption has been given below (Fig.5).

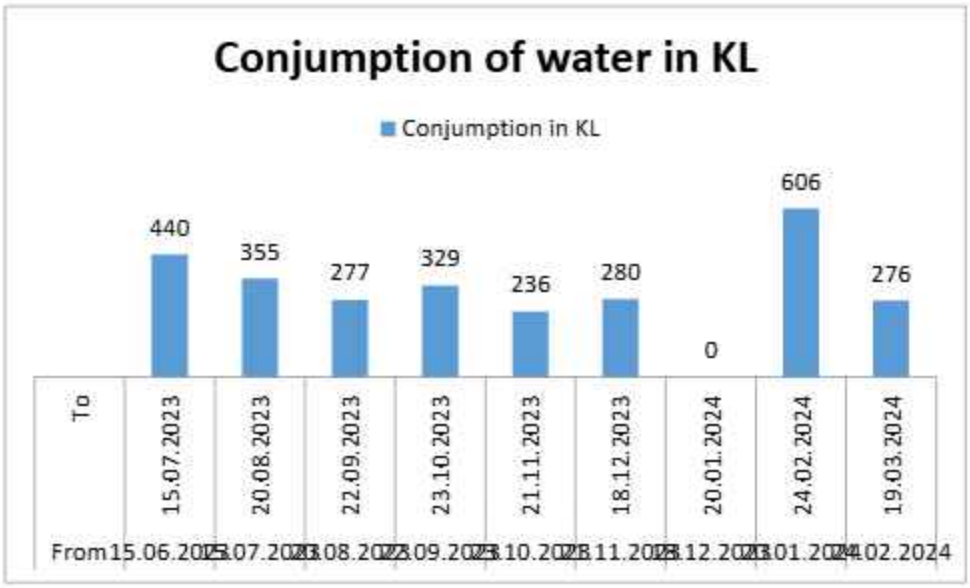


Figure 5. Monthly water demand by the institution

For the conservation of water, the institution has taken several initiatives. Few initiatives have been discussed below:

Rainwater Harvesting

The central area of the new building of college has a rainwater harvesting system for better groundwater recharge (Fig.6). The stored water in this tank can be used for gardening purposes and supply to the running track.

Figure 6. Rainwater harvesting

The institute also has a borewell near the Vivekananda Auditorium (Fig7). The water supplied from the borewell is generally used for gardening purposes and thus reducing the dependency on the supplied water.

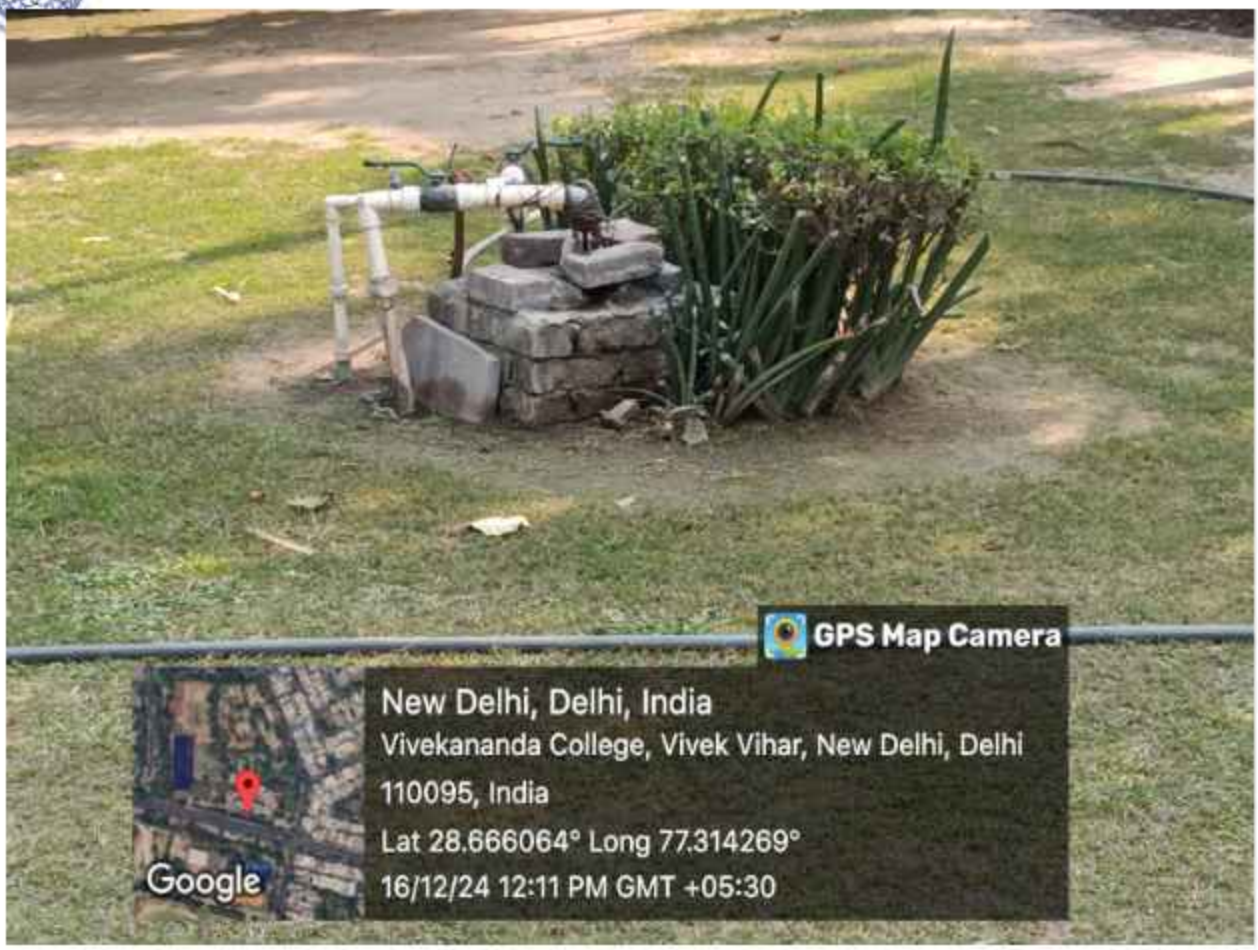


Figure 7. Borewell in the college campus

The institution has a wastewater unit near Gate no. 1 (Fig.8). Installation of a sewage treatment plant near this area is also planned and related paperwork started.

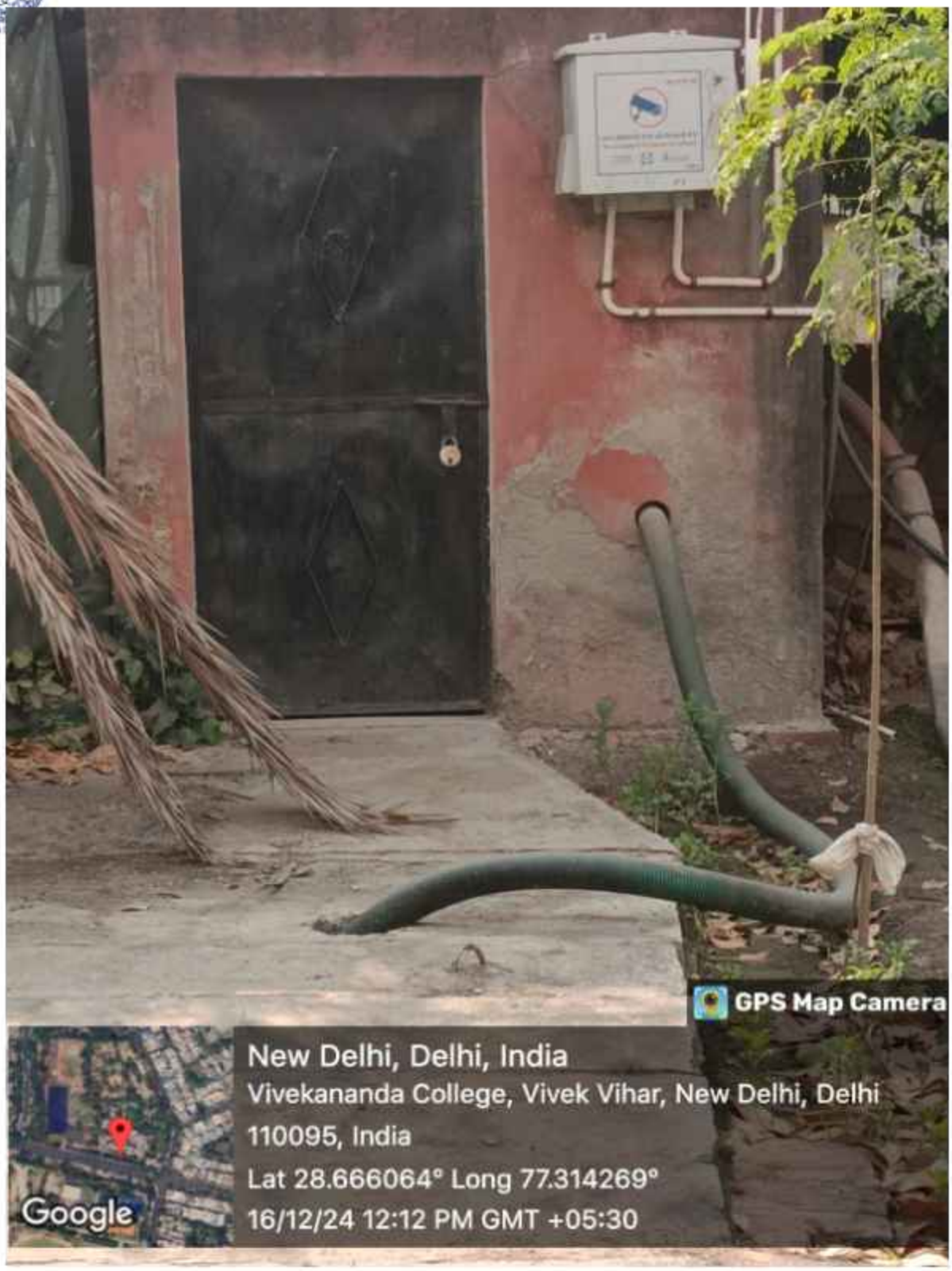


Figure 8. Wastewater pit

Waste Management

The college has organized numerous cleanliness campaigns over the last few years. These drives encourage students to separate recyclable and non-recyclable wastes. New dustbins are often installed as part of such drives. Green and blue dustbins are available on every floor of the college building, canteen, and garden (Fig.9). The detailed number of dustbins and their place are mentioned in the Table.3.

Table.3 List of dustbins in the college campus with their location

S. No.	Area in VNC campus	Locations	Green Dustbin	Blue dustbin	Other dustbin	Total
1	**New building**	Ground floor (Outside washroom)	1	1		2
		First floor (Outside washroom)	1	1		2
		Second floor (Outside washroom)	1	1		2
		Third floor (Outside washroom)	1	1		2
		Terrace area between new and old building	1	1		2
2	**Old building**	Ground floor (Near room no 12, 21 and in the washroom)	2	2	1	5
		First floor (Near room no 42 and 39)	2	2	1	5
		Second floor	2	2		4
		Old lab			1	1
3	**Inside washrooms**	Each floor regular, physical challenged and Staff Room			9	9
4	**Library**	First floor			1	1
		Second floor			1	1
		Third floor	1			1
		Librarian room			2	2
5	**Auditorium**	Vivekananda Auditorium	1	1	2	4
		Sharda Hall	1	1	2	4
6	**Canteen**	Main Canteen	1	1		2
7	**Sports Ground**				3	3
8	**Garden area**	Near Gate 1	1	1	1	3
		Rear side of Sharda Hall			1	1
		In front of Vivekananda Auditorium			1	1
		Car Parking area	1	1		2
		Total	**17**	**16**	**26**	**59**

Figure 9. Green and blue dustbins in the college campus

Moreover, College students actively participated in green initiatives such as plantation drives and several other eco-club activities under the able guidance of the faculty.

The College has banned the burning of leaves and branches. These are disposed of using the College's active compost pits (Fig.10). The college has maintained both pit compost and vermicompost at the corner of the garden area. In recent timesthe government has started several programmers to reduce the use of inorganic fertilizer and promote organic fertilizer which is very beneficial for the natural ecosystem. Therefore, the college Garden Committee tries to ensure the maximum use of natural fertilizers generated in the campus composting area for the nutrient requirement of different types of flora in the garden. The gardeners are also encouraged to use

natural materials for supporting plants and climbers.Gardenersare also encouraged to use Leaf compacting machine to generate nutrient-rich organic compost.

The college has organized numerous cleanliness campaigns over the last few years. These initiatives encourage students to separate recyclable and non-recyclable wastes. New dustbins are often installed as part of such drives. Green and blue dustbins are available on every floor of the college building, canteen and garden area.

Figure 10. Pit Compost in the Campus of the institution

Solid Waste Management: The institution has two functional compost pits for organic solid waste management. The organic waste of the college garden such as dry leave, grass, small branches of trees etc. is segregated and used in the pit compost for the generation of nutrient-rich compost. Usually, it takes a few months to convert waste to compost under normal

environmental conditions. In addition, the institution also has a compost machine for fast composting of kitchen and garden waste.

Biomedical Waste Management: The institution has a separate room to provide medical benefits for students and also has a separate dustbin for medical waste. Moreover, the college has also installed a sanitary napkin disposal machine which reduces the waste in an efficient manner without polluting nearby areas (Fig.11).

Figure 11.Sanitary napkin disposal machine

E-waste Management: College has a separate storeroom for the safe storage of electronic waste. After a certain interval of time college disposes of the E-waste to concerned agencies through the auction process.

Waste Recycling System: Organic waste of college canteen is usually used for the production of compost with the help of compost machine which is installed near the Vivekananda Auditorium (Fig.12).

Figure 12. Compost machine in the college campus

Hazardous Chemicals and Radioactive Waste Management: The institute has fivelaboratoriesthat do not work on hazardous or radioactive elements. Therefore, no radioactive waste management is needed.

Best Practices

Green and clean campus

College staff are engaged in making college campuses clean and healthy (Fig.17). To improve soil quality, the College has operational pit compost and vermicomposting. The burning of garden waste is strictly prohibited on the Campus. All garden waste is used for making compost in compost pits. In order to ensure safe drinking water, the College has installed RO plants in the campus.

Figure 17.Green college campus

Green House

A greenhouse has been established in the college premises to maintain greenery in the campus (Fig.18).For the replication of plants, the greenhouse plays an important role assaplingsare grown in agreenhouse under suitable environmental conditions. It protects saplings fromextreme

weather conditions. The greenhouseis also used in developing compost and other garden-related activities.

Figure 18.Greenhouse of the institution

Green pavement block

The central area of the old building of college has a green pavement block for better water groundwater recharge (Fig.19). This serves both as an eco-friendly measure and as aesthetically appealing.

Figure 19. Green pavement block in the campus

Soundproof silent generator

Soundproof silent generators are an efficient tool to keep both noise and vibration at low levels. For the power backup of the institution, the soundproof model is installed near Gate no.2 of the institution (Fig.20).

Figure 20. Soundproof silent generators

Facilities for persons with disabilities

The institute hasramp facility for easy access to classrooms in both new and old buildings (Fig.21)

Figure 21. Ramps for easy access to classrooms

Award for Green Campus (11-02-2023)

Indraprastha Horticulture Society

DELHI-110 092

Annual Flower Show-cum-Painting Competition for Children

The entry of .....Vivekananda.....College..... in the

category of .College...Garden... was adjudged and given the .Best..... prize

at the Annual Indraprastha Flower Show.

11.2.2023
Date

Secretary

President