

# GREEN & ENVIRONMENT AUDIT



## DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE (Autonomous) Arumbakkam, Chennai

*Done By*

GREENPRO  BUILDMART

#13, GF, 9<sup>th</sup> Street, Astalakshmi Nagar, Alapakkam,  
Chennai – 600116

[greenprobuildmart@gmail.com](mailto:greenprobuildmart@gmail.com)  
<http://greenprobuildmart.business.site/>

## ACKNOWLEDGEMENT

Greenpro Buildmart Team wishes to thank all the Teaching & Non teaching Staffs of **DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE**, Chennai for the kind cooperation and assistance extended to our team during the course of the audit.

We would like thank Principal **Dr S.Santhosh Baboo** for giving us the opportunity.

-

From GREENPRO consulting team



# 1. Summary

Green Audit of DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE, Chennai was carried out by Greenpro Buildmart during March 2022.

The approach taken in this facility included different tools such as preparation of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and associated systems & equipment, including the electrical, lighting & AC systems, and operational & maintenance procedures. Operational Data were also collected from the past records. The study covered the following areas to summarize the present status of environment management in the campus:

- Water management
- Energy Conservation
- Waste management
- Green area management

The report accounts for the environmental & green measures practised by Dwaraka Doss Goverdhan Doss Vaishnav College based on actual assessment. The report compiles a list of possible actions to conserve and efficiently access the available scarce resources and their saving potential was also identified.

The overall annual energy consumption is **620,968 kWh/annum**. The annual greenhouse gas emissions equivalent for electricity is **528 tons of CO<sub>2</sub>** (0.9kg of CO<sub>2</sub> emits /kWh of unit generation).

## 2. Institution Details

Dwaraka Doss Goverdhan Doss Vaishnav College, a linguistic minority institution established in 1964 by Rajasthanis and Gujaratis settled in Chennai for the cause of higher education. The college with a sole purpose of imparting knowledge and value based education saw its grand day on 30<sup>th</sup> June 1964 with one course in B.Sc. Mathematics with Shri. Totadri Iyengar (teacher of Dr. APJ Abdul Kalam) as its first Principal.

Dwaraka Doss Goverdhan Doss Vaishnav College has been a haven for generations of enthusiastic learners through 5 decades and more. College was founded on the principles of Vaishnavism, with the sole purpose of imparting value based quality education and empowering youth. The college has seen a phenomenal growth in terms of its infrastructure , its constantly restructured and revamped curriculum to cater the specific needs of the students community. Outstanding performance of students in academics and extension activities has enabled the college to emerge as one of the premier institutions of higher learning.

An interdisciplinary, multi disciplinary approach in designing the course work is adopted to ensure industry – academia collaboration. The college has entered into collaborations with many reputed institutions/organizations.

## 2. Audit Details

The main objective of the green & environmental audit is to promote the Environment Management and Conservation in the College Campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards.

The main objectives of carrying out Green Audit are:

- To understand the current practices of sustainability with regard to the use of water and energy, generation of wastes, purchase of goods, transportation, etc.
- To create document of baseline data of good practices and provide future strategies and action plans towards improving environmental quality for future.
- To introduce the students about the real concerns of environment and ways to reduce our impact on it.
- To secure the environment and cut down the threats posed to human health by analysing the pattern and extent of resource use on the campus.

Our audit team underwent physical on-campus inspection and checked the related records. Interaction with the various campus stakeholders and the data generated by our team's findings and recommendations is given hereby. It will help the Institute achieve the long-term goal of environmental sustainability when implementing the suggestions.

### 3. Framework & Observations

During the initial stage of Audit, we had a proper discussion with the Management presided by **Principal Dr. S. Santhosh Baboo** himself about the facilities & sustainable practices followed within the campus and future plans. Further on the course of audit, interviews with key management & operational staffs was conducted.

This audit has been conducted in accordance with the International Standards for the professional Practices of Internal Auditing. The conclusions & observations included in the report are based on our professional & procedural approach and judgement.



Waste management		
Objective	Controls	Observations
Maximise the proportion of waste that is recycled & minimise the quantity of non recyclable waste	Reduce the amount of waste from staffs & students in campus	College already have initiated paper waste reduction campaigns through notice boards & email signatures with captions mentioned " <b>Think before you print</b> ", " <b>Easier saving paper than planting trees</b> ". A sign near printer mentioning " <b>Save paper; Use both sides</b> " is placed. Though single use water bottles are used in canteen, wastes are segregated separately.
	Segregation of waste at source	Campus have initiated waste segregation through use of different metal bins with indications for paper, glass, plastic, metal, e-waste & organic waste in necessary locations.
	Waste recycling through composting	Garden wastes were collected & Vermi-composting was practised in small scale & the output were used as fertiliser for landscape within campus.
	Organic Waste recycling through Biogas system	Food waste & vegetable scraps are collected daily from hostel mess & canteen to feed the biogas system & the generated gas is used for cooking purpose. Approximately 10-20kg waste are feed & which in turn provide cooking gas for 3-4 hours.
	Waste recycling through vendors	Segregated recyclable waste & garden waste are collected separately daily by service staff and disposed in every 3 days by local vendor.
	Ewaste disposal through vendors	Contract has been made with local vendor specifically for e-waste collection & disposal.
	Biomedical waste disposal	First aid provisions are handled by SVDC & they take care of the biomedical waste with proper procedure as per their practise.
	Hazardous Waste disposal	The hazardous waste like used oil from DG set, cotton waste, filters are segregated through authorised vendor as per Hazardous & Other waste (Management & Transboundary movement) Amendment rules 2016.
Related documents are annexed		

<b>Energy management</b>		
<b>Objective</b>	<b>Controls</b>	<b>Observations</b>
Reduce Energy Consumption, especially of fossil fuels	Look into the possibility of on-site micro generation of electricity through renewable energy	Installed 110kW solar panel in roof of various blocks & approximately 10-12% of energy consumption is catered by solar power. And solar water heater is installed in hostel block. Solar panels are cleaned on regular intervals.
	Give preference to the most energy efficient and environmentally sound appliances available	Campus has installed LED batten lights & procurement team are much aware to purchase only BEE star rated products as per their Green policy.
	Encourage staff, students and guests to save energy through visible reminders and information to increase awareness	Signage near switch boards to turn off when not in use is placed & staffs particularly instructs the students to turn off while leaving the class rooms & break. Also cleaning staffs are educated to turn off lights & fans when not in use.
	Monitor & understand the different sources of energy consumption and target for reduction or to identify unwanted energy spike in specific area	Every DBs are placed in EB room & Chief Electrical Manager personally checks the consumption pattern of block & Distribution boxes and leaves no room for excess usage of electricity.
	Conduct drills at regular intervals	Such drills are not planned in the current year.
	Ensure that all electronic and electrical equipment are switched off when not in use, or put in power saving mode during breaks	Usually lab assistants & service staffs are educated to switch off the computers & other lab equipment when not in use.
	Personalised controls	Class rooms, Labs & Staff rooms are adequately daylight and the few zones which needs light can be only switched ON and avoids unnecessary use of artificial lights. Automated controls like occupancy sensors are in future plans.
	Related documents are annexed	

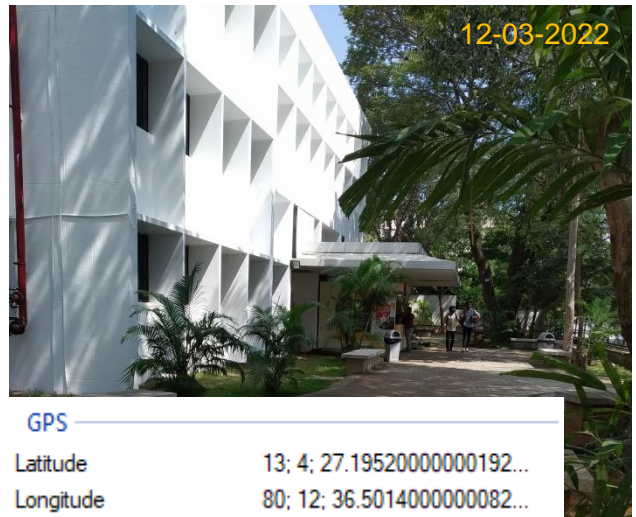
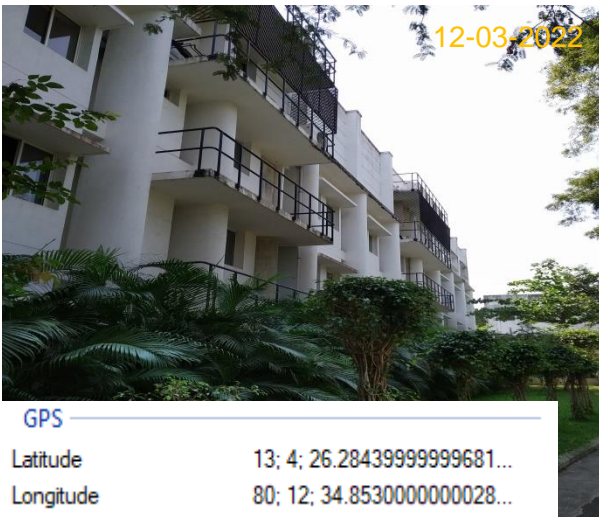


Environmental Management		
Objective	Controls	Observations
Ensure that Environmental awareness is created	Conduct Environmental awareness workshops are part of program	Enviro club is in charge for environmental activities which conduct campaigns during college functions
	Conduct events to spread awareness through students	Environmental committee is in place to maintain & develop <b>organic farming &amp; Bee keeping</b> is practised within the garden of campus. These activities are updated in the college website to create awareness about the biodiversity.
	Reduce the rate at which the college campus contribute to depletion & degradation of natural resources	Campus does not directly or indirectly contribute in depletion or degradation of natural resources.
Related documents are annexed		

Water Management		
Objective	Controls	Observations
Minimise Water consumption	Recycling & reuse of waste water	One 225KLD & one 150KLD STP are installed & waste water was treated & reused for Flushing & Landscaping, etc. Due to COVID conditions influx is low.
	Install appliances which reduce water consumption	Water closets are dual flush which uses water based on the needs. Taps installed have flow rate of 7-9 LPM, which are on the higher side, however we suggest to close the down supply valve to 25% to cut down the gushing of water in taps.
	Encourage a decrease in water usage among staffs, students and guests	Signage in wash rooms & canteens are placed to close the taps when not in use & not to open the tap to full open condition.
	Repair sources of dripping taps and showers	Dedicated Plumber is always available & Chief Maintenance Manager is in constant rounds to check any issues. However no Overflow cut-off system is not provided in OHTs.
Related documents are annexed		

**Green Standards**

Objective	Controls	Observations
Ensure that the building confirms to green standards	Review architecture of existing buildings to reduce usage of energy & water and reduce carbon emissions	Buildings are designed such a way to provide shade to each windows through sun shades, which blocks the harmful solar radiations & keeps the inside space cool with large airy windows and nearby trees. Computer labs & AC spaces windows are tinted for blocking solar heat & any time or angle. Louvre kind of fins are placed in MCA block, which blocks direct sunlight. And as per their green policy, new constructions will follow green standards. With Solar panels & waste water recycling, campus has reduced the usage of energy & water and subsequently the carbon emissions.
Related documents are annexed below		



<b>Environmental Policy Management</b>		
<b>Objective</b>	<b>Controls</b>	<b>Observations</b>
Ensure that Environmental policy is enacted, enforced & reviewed	Establish a campus Environmental Committee that will hold responsible for the enactment, enforcement & review of the policy	Campus has an Environmental Committee following the holistic green policy
	Ensure that committee will have representatives of related departments including maintenance, finance, science departments	Representative from all related departments are included.
	Ensure that on Environment committee there will be an Green officer from external agency who is engaged in profession of providing guidance on environmental impact	College has enrolled an external green volunteer to provide guidance.
	Ensure that the committee will review the policy on an annual basis and will monitor progress & set possible targets	Committee has ensured to review the policy annually.
	Ensure that the policy is enforced regardless of whether its requirements exceed the mandate of law	Green policy is enforced.
	Require that every staff and student member recognises their responsibility to ensure the commitments are properly put into practise	Members of committee are working their best.
	Ensure that audit is conducted annually and action is taken on basis of audit report, recommendations & findings	Green audit is conducted.
	Related documents are annexed	



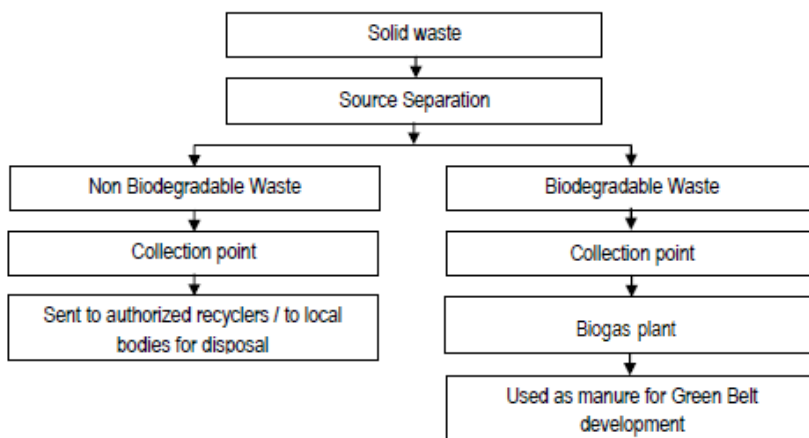
## 4. Annexes

### 4.1 Solid waste Management

In the campus, private sweepers are engaged for handling domestic waste. Adequate number of collection bins separately for biodegradable and non-biodegradable waste has been provided as per the Municipal Solid Waste Management Rules (MSWM), 2000. Dedicated metal bins for paper, plastics, glass, e-waste & wet waste are provided with colour code indication. Waste from such bins are collected separately on daily basis. Final segregation of solid waste into biodegradable and non-biodegradable are done in the garbage collection point near second gate.

The food & vegetable scrap waste collected from the canteen & hostel mess are fed to **biogas plant** installed near hostel block and biogas is used for cooking. The liquefied manure from biogas is used as manure for garden.

The non biodegradable wastes are given to the authorized recyclers. Horticulture wastes leaves and grass are being collected at the secured location such that it will not hinder daily activity schedule or washed away by the surface runoff causing choking of drains, etc. and being separately treated and disposed off along with biodegradable waste.



## 4.2 Hazardous waste Management

This indicator addresses hazardous waste used in campus maintenance, laboratories, medical waste, art supplies, colours, dyes and chemicals. Hazardous products pose major threats to human health and to environmental quality. They often persist in the environment leaving a legacy of land and water contamination for generations. Many accumulate in the tissues of organisms and become concentrated within food chains, leading to cancer, endocrine disruption, birth defects, and other tragedies. The minimization, safe handling, and ultimate elimination of these materials are essential to the long-term health of the planet.

It is observed that in the department of Chemistry, chemicals are handled for practical purpose and these chemical wastes are drained out along with basin water directly to the sewage treatment plant.

However for environmental sustainability, the drainage of chemical laboratory should be collected in air tight cement chamber and frequently the chemical waste from chamber is sent for recycle or for scientifically destroy process.

Usage of Diesel Generators are minimal as the college is situated in main city where shutdowns are minimal. However the minimal hazardous waste such as used oil collected from the DG sets, discarded cotton waste and filters are collected and segregated and disposed when necessary through the authorized vendor as per the Hazardous and Other Wastes (Management and Transboundary Movement) Amendment Rules, 2016.

### **4.3 E Waste Management**

E-waste can be described as electronic consumer and business equipment which is near or at the end of their useful life. E-waste makes up about 5% of all municipal solid waste worldwide but is much more hazardous than other waste because electronic components contain cadmium, lead, mercury and Polychlorinated biphenyls (PCBs) that can damage human health and the environment. The e-waste generated in the Institute is collected separately and disposed through authorised local vendors periodically.

### **4.4 Biomedical waste Management**

Biomedical waste in the campus is negligible. However the waste generated by Health Centre in the campus will be taken care by the SVDC.

### **4.5 Green Policy - Procurement**

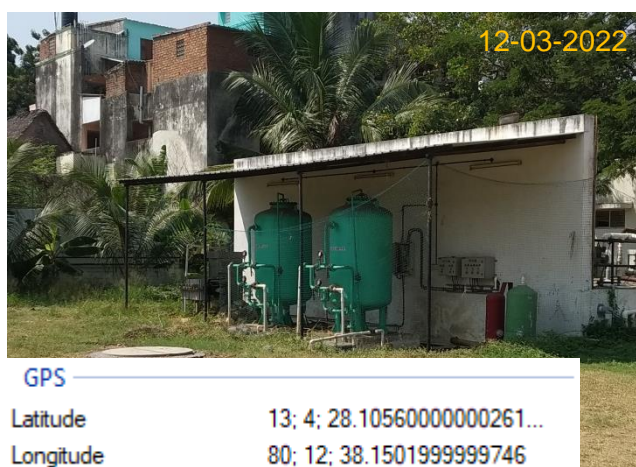
As part of their ongoing commitment to improving the environment, this policy aims at reducing the environmental impacts of campus operations and promoting sustainable development by integrating environmental performance considerations into the procurement process. Policy encourages and prefers environmentally friendly products which are more efficient in terms of power. The Institute prefers buying from a less polluting source or using clean technology, and also encourage and prefer vendors using recycled packaging material. The possibilities for further reuse and/or recycling with the user shall be explored on the basis of needs and other conditions.

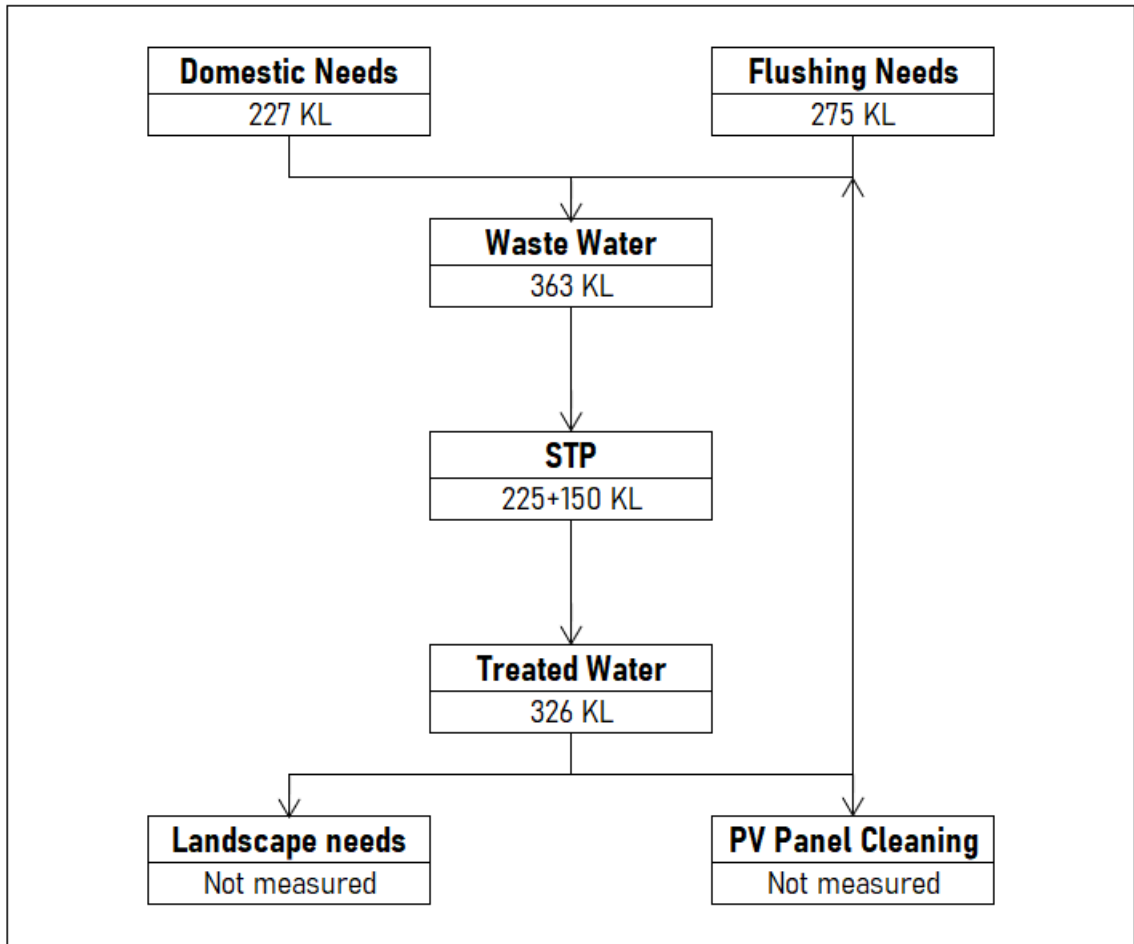
Procurement preference would be given to the vendors those who obtained ISO 14000 Certificate. Policy includes to integrating environmental performance aspects into the procurement process, including preparation, production, usage and disposal. The Institute has committed to understand the environmental factors, future impacts and costs associated with the life-cycle evaluation of the acquired products and services.

#### 4.6 Water Consumption

The total water requirement during operation is 502 KLD. The fresh water is catered by bore well & municipal water source and it is treated before use. The wastewater generation from the project is about 363 KLD, which is treated in the sewage treatment plants of 225 & 150 KLD and is being recycled for flushing and gardening. The total capacity of STP is 375 KLD. The details of water requirement and the water balance chart is shown below. The treated water is reused for flushing, landscaping, road cleaning, PV panel cleaning, etc.

Occupant type	Occupancy	Flushing Requirement	Domestic Requirement	Total
Students	10196	254900	203920	458820
Staffs	389	11670	5835	17505
Hostel students	176	7920	15840	23760
Service Staffs	30	450	900	1350
Visitors	10	150	300	450
Overall Requirement		<b>275090</b>	<b>226795</b>	<b>501885</b>
Waste water generation with diversity factor		<b>362611</b>		







### 4.7 Renewable Energy

Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. However, many may not realize how much influence the higher education sector has in the larger energy market.

Major use of energy is in office, classrooms, canteen, hostels and laboratories for lighting, and laboratory work. AC consumption in offices, computer labs & classrooms are considerably high. The sanctioned demand from TNEB is 600 kVA and supplied through 2\*1000kVA transformers and a DG system of 4\*500kVA as backup. The Institute campus is generating around 400-500 units daily from **110kW Grid connected Solar PV** panels installed in roof tops of various blocks.

Also the hot water for the hostel is supplied by **solar water heater** installed in the roof. And the food waste & vegetable scraps from mess & canteen is feed to **biogas system** to generate cooking gas for 3-4 hours.



## 4.8 Environmental Awareness

Environmental committee along with UDYAMITA (Entrepreneurship Development Cell) consisting of various staffs & students of various departments initiated **organic farming, bee keeping** (Apiculture) and **herbal garden** activities within the campus to promote the biodiversity of the campus & to create awareness among the students & visitors. External Environmental experts are invited for enlightening the students about sustainability & environment conservation. Also department of Microbiology conducts Air & water quality testing annually to study & create awareness among students.

**Green Initiatives** program to promote organic farming near library block is undertaken.



GPS

Latitude 13; 4: 27.3398999999990266  
 Longitude 80; 12: 46.85519999999908375

Green Initiatives






GPS

Latitude 13; 4: 27.42779999999976707  
 Longitude 80; 12: 46.94359999999987175

E Waste Collection box

## 5. Green Measures & Observations

With most environmental measures are included in the previous part, few topics & measures which are to be considered under the green standards are observed and mentioned in the following.

<b>Basic Amenities</b>	
<p>The objective of this measure is to provide the basic needs at the nearest possible locations so as to reduce the movement of students &amp; staffs and thereby reducing the carbon footprint</p>	
<b>Implementations &amp; Observations</b>	
<ol style="list-style-type: none"> <li>1. Bus stop is nearby the campus main entrance &amp; it is well connected to most city areas thereby reducing the need to use personal vehicles by staffs &amp; students</li> <li>2. Bank: Canara Bank with ATM is nearby the entrance gate with staff's accounts are opened there</li> <li>3. Cafe &amp; Canteen: Refreshments are available within the campus premises</li> <li>4. Hostel &amp; Mess are within the campus in walkable distance to academic block</li> <li>5. Indoor arena &amp; Outdoor sports area are large enough to cater more students</li> <li>6. Fully automated library with AUTOLIB software &amp; internet connection &amp; printers</li> <li>7. A stationary shop with office &amp; student supplies are nearby the gate</li> </ol>	
<b>Photos</b>	
	
<p>GPS</p> <p>Latitude            13: 4: 26.2843999999968148</p> <p>Longitude         80: 12: 34.85300000000028295</p>	<p>GPS</p> <p>Latitude            13: 4: 26.3989000000001361</p> <p>Longitude         80: 12: 55.96409999999829</p>
	

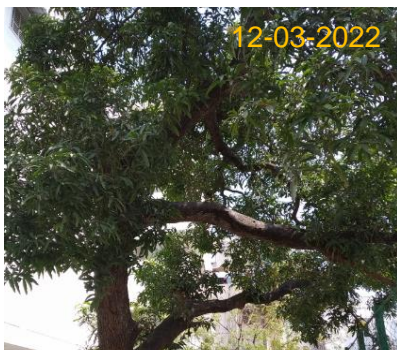
## Landscaping

The objective of this measure is to reduce the air pollution and help in overall improvement of environmental conditions in campus

### Implementations & Observations

1. Campus is fully covered in green areas with rain water harvesting pond to boost the green atmosphere & calm surroundings
2. Bee keeping is implemented to boost the ecosystem within the campus
3. Native species like Neem, Mango, tamarind trees are grown which require less maintenance and provide more shade
4. Department of Botany has planned for a vast survey of plants & species as a part of Green policy in next year.
5. The plants list available has been annexed.

### Photos



GPS  
 Latitude 13; 4; 21.2767999999996604  
 Longitude 80; 12; 37.5678000000188561



GPS  
 Latitude 13; 4; 26.28439999999968148  
 Longitude 80; 12; 34.8530000000028295



GPS  
 Latitude 13; 4; 26.28439999999968148  
 Longitude 80; 12; 34.8530000000028295



GPS  
 Latitude 13; 4; 25.034800000012583  
 Longitude 80; 12; 44.37969999999904074



GPS  
 Latitude 13; 4; 21.2767999999996604  
 Longitude 80; 12; 37.5678000000188561

Sl. No	Name of the Plant	T = Tree S = Shrub H = Herb C = Climber
1	<i>Ficus benjamina</i> L.	T
2	<i>Azadirachta indica</i> A.Juss.	T
3	<i>Phyllanthus emblica</i> L.	T
4	<i>Moringa oleifera</i> Lam	T
5	<i>Citrus limon</i> (L.) Osbeck	T
6	<i>Cocos nucifera</i> L.	T
7	<i>Ficus religiosa</i> L.	T
8	<i>Mangifera indica</i> L.	T
9	<i>Samanea saman</i> (Jaco) Merr.	T
10	<i>Cassia fistula</i> L.	T
11	<i>Guazuma ulmifolia</i> Lam.	T
12	<i>Terminalia catappa</i> L.	T
13	<i>Mangifera indica</i> L	T
14	<i>Borassus flabellifer</i> L.	T
15	<i>Pongamia pinnata</i> (L.) Pierre	T
16	<i>Bambusa vulgaris</i> Schrad.	T
17	<i>Bauhinia purpurea</i> L.	T
18	<i>Plumeria alba</i> L.	T
19	<i>Calophyllum inophyllum</i> L.	T
20	<i>Nyctanthes arbor-tristis</i> L.	T
21	<i>Punica granatum</i> L.	T
22	<i>Hibiscus rosa-sinensis</i> L.	S
23	<i>Ixora coccinea</i> L.	S
24	<i>Ocimum sanctum</i> L.	H
25	<i>Ficus racemosa</i> L.	T
26	<i>Murraya paniculata</i> (L.) Jack	T
27	<i>Bougainvillea spectabilis</i> Willd.	S
28	<i>Guazuma ulmifolia</i> Lam.	T
29	<i>Cassia roxburghii</i> DC.	T
30	<i>Tamarindus indica</i> L.	T
31	<i>Couropita guianensis</i> Aubl.	T
32	<i>Butea monosperma</i> (Lam.) Taub.	T
33	<i>Eucalyptus tereticornis</i> Sm.	T
34	<i>Carrica papaya</i> L.	T
35	<i>Ceiba pentandra</i> (L.) Gaertn.	T
36	<i>Roystonea regia</i> (Kunth) O.F.Cook	T
37	<i>Tectona grandis</i> L.f.	T
38	<i>Muntingia calabura</i> L.	T
39	<i>Musa paradisiaca</i> L.	T
40	<i>Gmelina arborea</i> Roxb.	T
41	<i>Justicia adhatoda</i> L.	S
42	<i>Vitex negundo</i> L.	T
43	<i>Bryophyllum pinnatum</i> (Lam.) Oken	H
44	<i>Abutilon indicum</i> (L.) Sweet	S
45	<i>Solanum trilobatum</i> L.	C
46	<i>Mitragyna parvifolia</i> (Roxb.)Korth.	T

Sl. No	Name of the Plant	T = Tree S = Shrub H = Herb C = Climber
47	<i>Morinda citrifolia</i> L.	T
48	<i>Psidium guajava</i> L.	T
49	<i>Hamelia patens</i> Jacq.	S
50	<i>Syzygium cumini</i> (L.) Skeels	T
51	<i>Ficus benghalensis</i> L.	T
52	<i>Feronia elephantum</i> Correa	T
53	<i>Hamelia patens</i> Jacq.	H
54	<i>Ficus religiosa</i> L.	T
55	<i>Markhamia lutea</i> (Benth.) K.Schum.	T
56	<i>Dracaena marginata</i> hort.	H
57	<i>Polyscias guilfoylei</i> (W.Bull) L.H.Bailey	H
58	<i>Philodendron burle-marxii</i> G.M.Barroso	H
59	<i>Dracaena reflexa</i> Lam.	H
60	<i>Syzygium</i> Sp.	T
61	<i>Phyllanthus acidus</i> (L.) Skeels	T
62	<i>Galphimia glauca</i> Cav.	S
63	<i>Ficus auriculata</i> Lour.	T
64	<i>Bauhinia tomentosa</i> L.	T
65	<i>Bougainvillea spectabilis</i> Willd.	T
66	<i>Catharanthus roseus</i> (L.) G. Don.	H
67	<i>Aegle marmelos</i> (L.) Corrêa	T
68	<i>Millingtonia hortensis</i> L.f.	T
69	<i>Mimusops elengi</i> L.	T
70	<i>Bauhinia tomentosa</i> L.	T
71	<i>Phyllanthus acidus</i> L.	T
72	<i>Plumeria rubra</i> L.	T
73	<i>Ficus benjamina</i> .L	T
74	<i>Sterculia foetida</i> L.	T
75	<i>Ficus Benjamina</i> . L	T
76	<i>Ficus benjamina</i> .L	T
77	<i>Murraya paniculata</i> (L.) Jack	T
78	<i>Zephyranthes candida</i> (Lindl.) Herb.	H
79	<i>Hymenocallis littoralis</i> (jacq.) Salish.	H
80	<i>Nymphae nouchali</i> Burn.f.	H

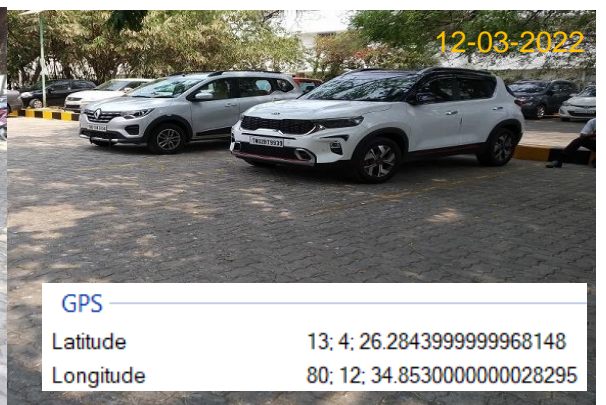
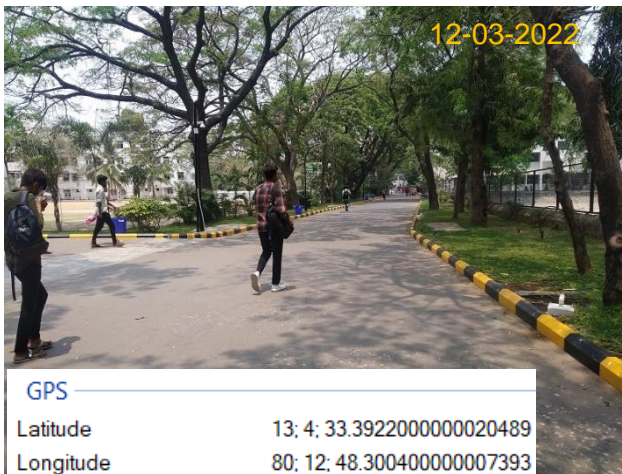
### Heat Island Effect

The objective of this measure is to reduce the overall temperature within the campus

### Implementations & Observations

1. Campus tar road connecting the entrance & main block & other blocks are well shaded & it reduces the heat which are reflected from tar & concrete surfaces
2. Separate pedestrian walkways are also well shaded and provide a cool atmosphere in the humid conditions of Chennai
3. Most roof spaces are covered with solar panels and thereby reducing the heat absorption & reflection from roof
4. We suggest the Management to apply white heat reflective coating on red clay roofs to reduce the heat gain inside the building

### Photos



### Rainwater Harvesting

The objective of this measure is to increase the ground water table & reduce the water usage

#### Implementations & Observations

1. Recharge bore well with 6inch diameter to 20 feet depth is installed around campus
2. Storm water drains are installed in hard surfaces all over the campus, which connect directly to the pond within the campus
3. The run off rain water rooftop is being drained out effectively by providing sufficient number of rain water outlets
4. These pipes are routed with necessary slope and dropped vertically down to horizontal stack at stilt floor level and through a network of Upvc/RCC Hume pipes with suitable diameter and catch basin/saucer drain of suitable sizes for surface catchments, the rain water settles in the pond
5. The pond acts as a buffer to catch all the run off & help recharge the ground water level & provide cool ambience.

#### Photos



GPS

Latitude 13; 4; 33.3922000000020489  
 Longitude 80; 12; 48.3004000000007393



GPS

Latitude 13; 4; 33.3922000000020489  
 Longitude 80; 12; 48.3004000000007393



GPS

Latitude 13; 4; 26.2843999999968148  
 Longitude 80; 12; 34.8530000000028295



## Rainwater Harvesting

The objective of this measure is to increase the ground water table & reduce the water usage

### Photos - Pond



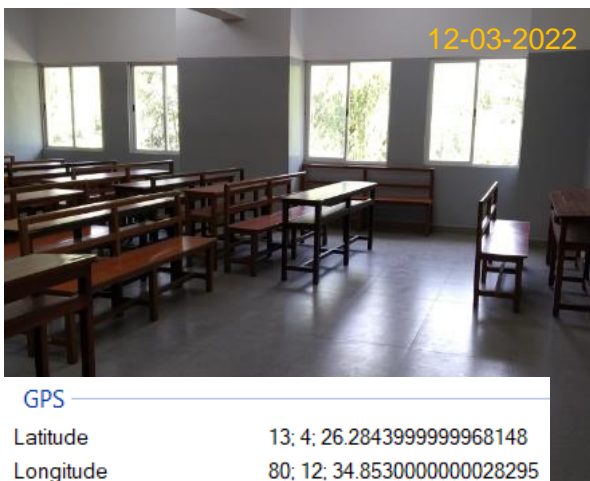
### Daylight in classrooms

The objective of this measure is to utilise maximum daylight & reduce artificial lighting requirement

#### Implementations & Observations

1. Most corner class rooms are well day light & can operate with minimum artificial light requirement. The lux levels range from 70-200 in upper floors, which are in optimum levels.
2. Some class is lower floors are dark due to adjacent blocks & smaller openings

#### Photos



Area	Lux level measured range	NBC recommended level	Light Fixture Installed	Comment
Krishna Block				
XS21	132-180	300	12 LED lights	Due to higher ceiling lighting is not enough
Language Lab	210-270	300	12 LED lights	Due to lower ceiling, lux level is higher comparatively
1st yr class	180-610	300	11 LED lights	Due to long breadth of class, one side is low lit
MBA Block				
DS 23	260-290	300	9 LED lights	
Lab@ ground floor	160-260	300	12 LED lights	Evenly lit
Common area				
Main Auditorium	160-200	150	LED down lights	Evenly lit
Main block				
3rd floor class room	200-260	300	8 LED lights	Evenly lit
2rd floor class room	150-170	300	4 LED lights	Due to long breadth of class, one side is low lit
Microbiology Block				
2rd floor class room	150-260	300	12 LED lights	Evenly lit
Lobby	50-300	100	Day Light measurement @ 1 noon	Enough Daylit except near lab areas

**Note:**

- Tested with Testo lux meter
- Tested with both light ON & OFF condition, however above table numbers are measured with Lights ON
- With Limited classes in functional due exams, readings are taken at possible classrooms without disturbing ongoing activities

### Ventilation in classrooms

The objective of this measure is to provide good ventilation for better student comfort

#### Implementations & Observations

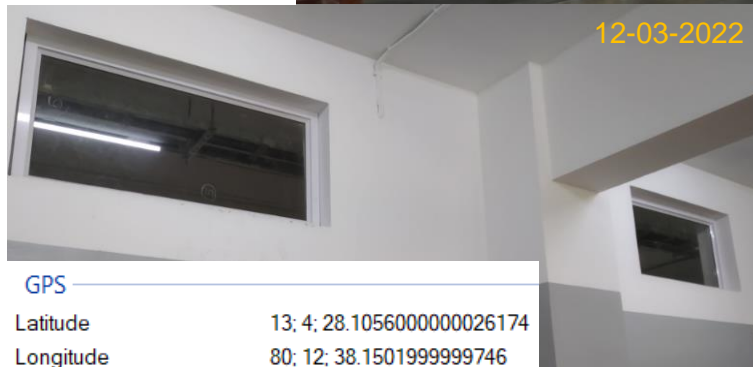
1. Most class rooms are well ventilated with large openable windows ensure better ventilations.
2. Some corner class rooms provide windows in both sides which aids in cross ventilation
2. Some class in microbiology department have fixed glass partition on wall top adjacent to lobby, the space would be more ventilated if the fixed partitions are openable for better circulation.

#### Photos



GPS

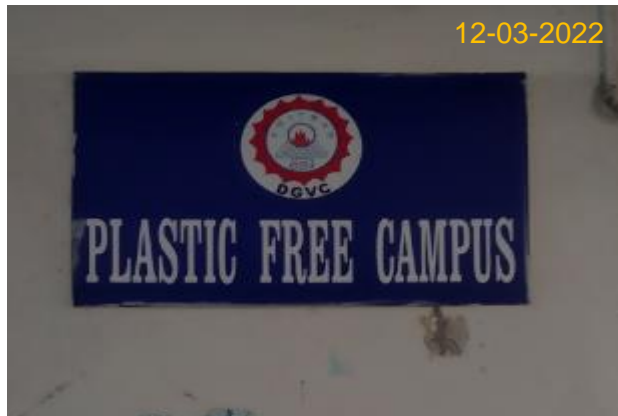
Latitude 13; 4; 27.1952000000019289  
 Longitude 80; 12; 36.50140000000082461



GPS

Latitude 13; 4; 28.10560000000026174  
 Longitude 80; 12; 38.15019999999746

## Awareness Signage & Other captures



12-03-2022

GPS

Latitude 13; 4; 26.284399999996148  
Longitude 80; 12; 34.8530000000028295



GPS

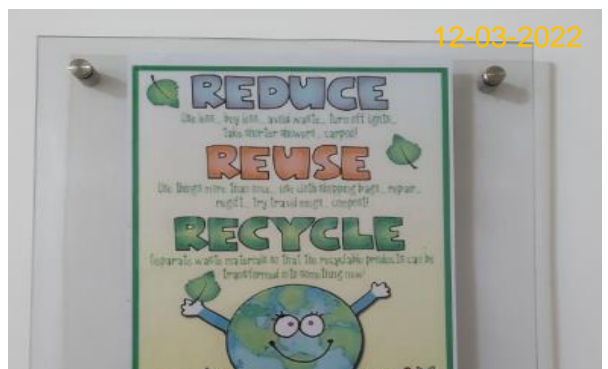
Latitude 13; 4; 30.8960000000006474  
Longitude 80; 12; 48.61940000000250171



12-03-2022

GPS

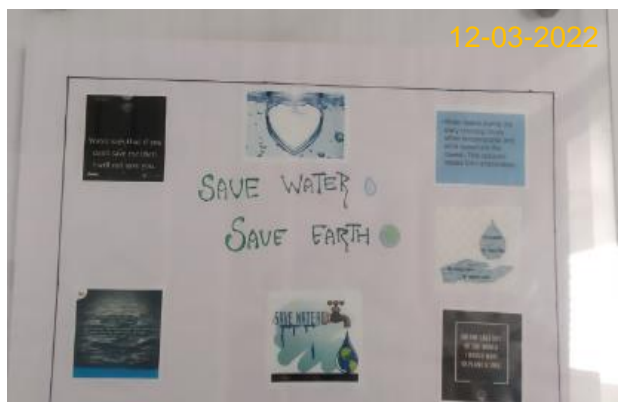
Latitude 13; 4; 30.8960000000006474  
Longitude 80; 12; 48.61940000000250171



12-03-2022

GPS

Latitude 13; 4; 30.8960000000006474  
Longitude 80; 12; 48.61940000000250171



12-03-2022

GPS

Latitude 13; 4; 30.6440000000002222  
Longitude 80; 12; 48.4437000000034956



12-03-2022

GPS

Latitude 13; 4; 31.1547999999965874  
Longitude 80; 12; 49.21950000000065264

## Awareness Signage & Other captures



Sanitizer in all entrances

GPS

Latitude 13: 4: 26.2843999999968148  
Longitude 80: 12: 34.8530000000028295

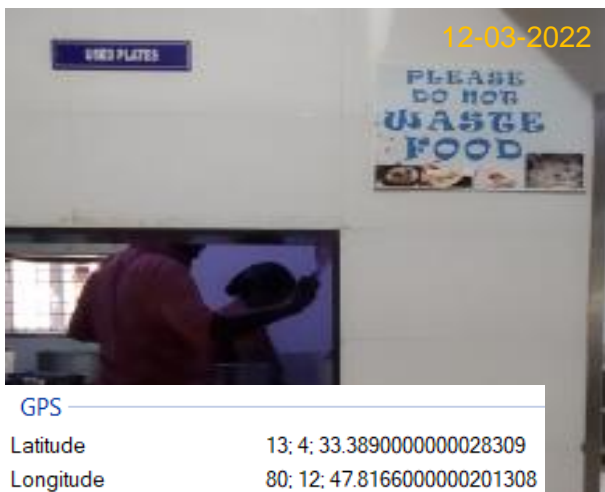


Ramp for Disabled



GPS

Latitude 13: 4: 26.2843999999968148  
Longitude 80: 12: 34.8530000000028295



GPS

Latitude 13: 4: 33.3890000000028309  
Longitude 80: 12: 47.81660000000201308



GPS

Latitude 13: 4: 26.2843999999968148  
Longitude 80: 12: 34.8530000000028295

## **Other Green measures that can be implemented**

1. Dedicated parking space for bicycles & non polluting vehicles like electric bikes/cars can be provided under tree shades.
2. Dedicated parking space for car pooling/ride sharing vehicles can be provided under shade. The objective of these measure is to encourage staffs & students to use non polluting vehicles & to engage in carpooling/bike pooling to help reducing the carbon footprint.
3. Water saving taps with aerators or sensor urinals can be installed or down valve can be partially closed for reduced flow in taps.
4. OHT overflow automatic cut off system should be installed to control the water wastage.
5. Campus uses garden hose for irrigating landscape, Drip irrigation can be installed for shrubs & trees. Lawn areas can be replaced to native shrub species with reduced water needs.
6. Recharge pits are covered with dry leaves hindering the collection efficiency of rain water recharging.
7. Block wise and Usage wise (STP, WTP, AC, etc.) Energy & water meter can be installed to monitor the actual performance of each usage/block to identify any problems in future.
8. Green certified chemicals can be purchased for house keeping and the same can be included in the green policy.

Environmental Management/Green Policy Plan provides the strength, weakness and suggestions for the campus' environmental issues. It also suggests which area should be given priority over. The whole green audit exercise concluded that the administration of the Institute is keen on all the environmental issues. With Students, faculty staffs and administration working together, it will produce the best outcomes to raise awareness and help push the environmentally friendly agenda ahead of the campus.

*Prepared & Audited By*



**Anand Sachithanantham**  
**ISO 14001:2015 Lead Auditor**  
**IGBC Accredited & GRIHA Certified Professional**  
**Sustainability & Environment Consultant**  
**Greenpro Buildmart**  
**Chennai**