GREEN WAVES
ENVIRONMENTAL SOLUTIONS

Certificate of Recycling

GreenWaves Environmental Solutions
Reference:GWES0216045
Authorisation:2/APPCB/E-Waste/2016

Organisation Name GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING FOR WOMEN

GreenWaves Environmental Solutions Would like to thank and present this certificate for recycling obsolete electronic waste.

Weight: 1550 Kg

Date: 22-11-2019

All The Material has been collected and handled in an environment friendly manner, in accordance with the guidelines set by the **Central Pollution Control Board**.We encourage you to continue the support for E-Waste management in environmentally friendly manner.

P Anil Chowdary

Potluri Anil Chowdary
Managing Director
GreenWaves Environmental Solutions

Form - 6 No. 217

[See rule 19]

E-WASTE MANIFEST

1.	Sender's name and mailing address (including Phone No.)	GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING FOR WOMEN, VSKP
2.	Sender's authorisation No. if applicable	
3.	Manifest Document No.	217
4.	Transporter's Name and address (including Phone No.)	GREEN WAVES ENVIRONMENTAL SOLUTIONS Near Studio, Mindhi Village,B.H.P.V(P.O), Gajuwaka,Vishakapatnam,AP,530012.
5.	Type of vehicle	(Truck or Tanker or Special Vehicle) ✓
6.	Transporter/s registration No.	
7.	Vehicle registration No	AP31TF6260
8.	Receiver's name & adress :	GREEN WAVES ENVIRONMENTAL SOLUTIONS Near Studio, Mindhi Village,B.H.P.V(P.O), Gajuwaka,Vishakapatnam,AP,530012.
9.	Receiver's authorisation No. if applicable	2/AUG/APPCB/E-Waste/2015
10.	Description of E-Waste (Item, Weight / Number)	LED, Monitor's, Key Board's, Printer's, Projector's, Aluminium Transformer's, Tread mill -- Etc 151559
11.	Name and stamp of Sender* (Manufacturer or Producer or Bulk Consumer or Collection Centre or Refurbisher or Dismantler) Signature Month Day Year	11 22 2019
12.	Trasnporter acknowledgement of receipt of E-Wastes Name and Stamp Signature Month Day Year	GREEN WAVES ENVIRONMENTAL SOLUTIONS Near Studio, Mindhi Village,B.H.P.V(P.O), Gajuwaka,Vishakapatnam,AP,530012. 11 22 2019
13.	Receiver* (Collection Centre or Refurbisher or Dismantler or Recycler) certification of receipt of E-Waste Name and stamp Signature Month Day Year	GREEN WAVES ENVIRONMENTAL SOLUTIONS Near Studio, Mindhi Village,B.H.P.V(P.O), Gajuwaka,Vishakapatnam,AP,530012. B.K. Kumar, 11 22 2019

* As applicable

Note :

Copy number with colour code (1)	Purpose (2)
Copy 1 (Yellow)	To be retained by the sender after taking signature on it from the transproter and other three copies will be carried by transporter.
Copy 2 (Pink)	To be retained by the receiver after signature of the transporter.
Copy 3 (Orange)	To be retained by the transporter after taking signature of the receiver
Copy 4 (Green)	To be retained by the receiver with his/her signature of the sender

GREEN AUDIT REPORT 2021

Gayatri Vidya Parishad College of Engineering for Women
Kommadi, Visakhapatnam. AP

GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING FOR WOMEN
(Approved by AICTE New Delhi, Affiliated to JNTUK Kakinada)
(Accredited by National Board of Accreditation(NBA) for B.Tech CSE, ECE & IT - Valid from 2019-20 to 2021-22)
Kommadi, Madhurawada, Visakhapatnam - 530 048
Phone: 91-891-2739144 / 2719124 / 2719125 / 2719127
Email id: gvpcew@gmail.com, info@gvpcew.ac.in
Eamcet councelling code: GVPW

PREPARED BY

GREEN WAVES ENVIRONMENTAL SOLUTIONS

GREENWAVES
ENVIRONMENTAL SOLUTIONS

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INTRODUCTION

Gayatri Vidya Parishad College of Engineering for Women (GVPCEW) is located in a coastal plain known as Madhurawada Dome of Eastern Ghats in the city of Visakhapatnam. The college offers a four year Bachelor of Technology (B.Tech) course and Master of Technology (M. Tech) in CSE Data science and VLSI Design and embedded system affiliated to JNTU - Kakinada. The institute is accredited by National Board of Accreditation (NBA) for B.Tech courses of CSE, ECE and IT. MOre than 85% of students have secured first class in the past 4 batches.

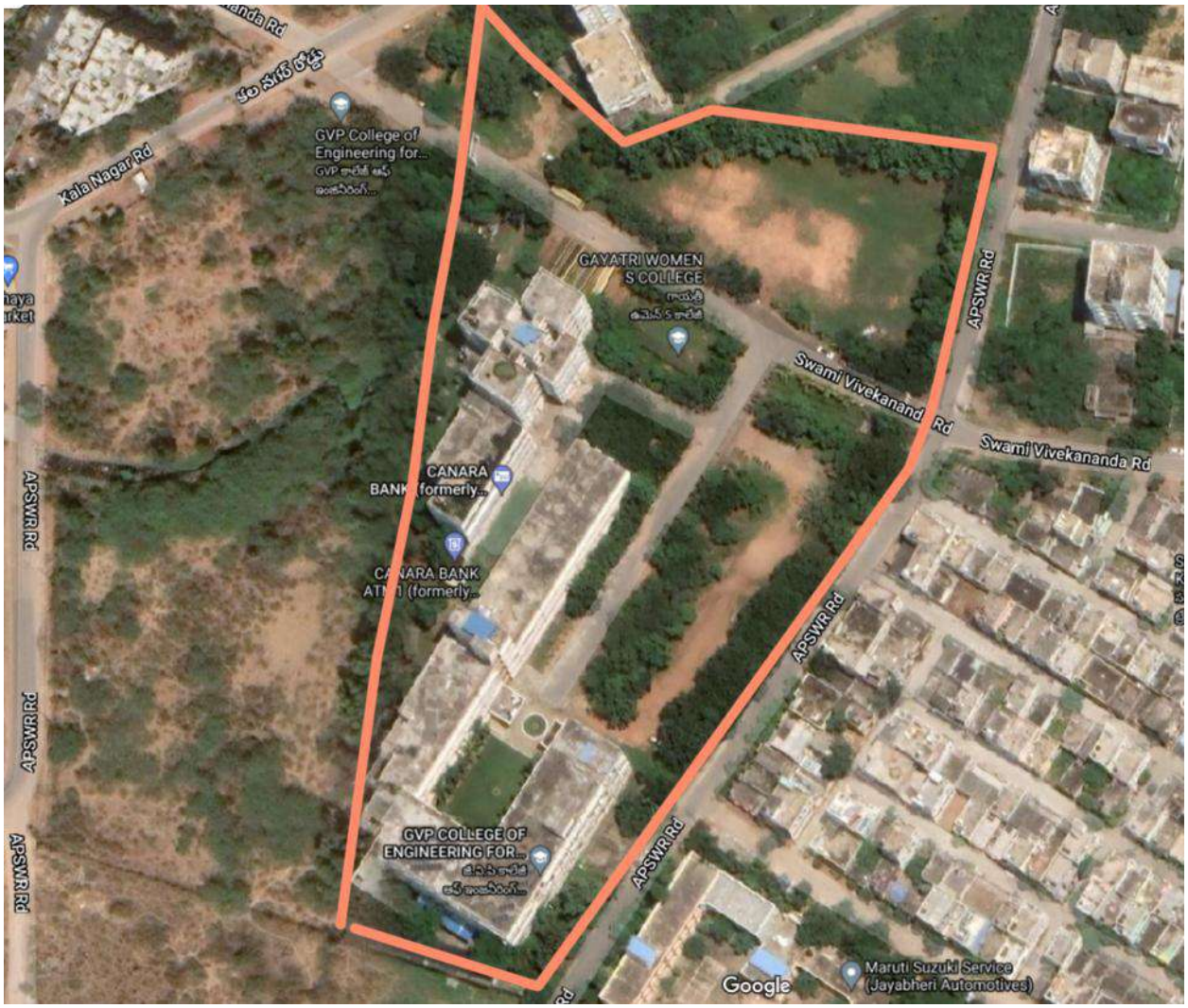
Gayatri Vidya Parishad College of Engineering for Women (GVPCEW) intends to develop the potential of students in order to nurture their creative and analytical mindset on various engineering aspects. GVPCEW believes that the purpose of engineering education is to not only focus on pure studies but also provide opportunities to explore the capabilities and their areas of interest. GVPCEW also believe that soft skills are very important towards managing and leveraging the various opportunities and challenges of the society.

Vision

To emerge as an acclaimed center of learning that provides value based technical education for the holistic development of students.

Mission

- **Undertake activities that provide value based knowledge in Science, Engineering & Technology**
- **Provide opportunities for learning through Industry – Institute interaction on the state-of-the art technologies**
- **Create collaborative environment for research innovation and entrepreneurship**
- **Promote activities that bring in a sense of social responsibility**



Location of campus in Visakhapatnam city

Campus and Physical Infra

The college is spread over 5 acres in a beautiful and serene atmosphere ideally suited for quality based technical education. The infrastructure and facilities available on the campus are amongst the best. The college has spacious classrooms, well equipped departmental laboratories with all the required, latest and sophisticated equipment and an excellent library for students with seating capacity of 150. There is a large acoustically treated auditorium.

Objective for Green Audit:

Green audit serves as means to identify opportunities to sustainable development practices, enhance environmental quality, improve health, hygiene and safety, reduce liabilities and save money and achieve values of virtue. Green Audits are a sub-set of Environmental audits, and can be a highly valuable tool for educational institutions in a wide range of ways to improve their environmental and economic performance and reputation -- while reducing wastages and operating costs. Once a baseline data is prepared after the auditing process, the data can serve as a point of departure for further action in campus greening. It will also help the institution to compare its programmes and activities with other peer institutions, identify areas for improvement and prioritise the implementation of future projects. The data will also provide a basis for calculating the economic benefits of resource conservation projects by establishing the current rates of resource use and their associated costs.

The specific objectives are:

- To prepare a checklist of flora and fauna diversity in and around the college campus.
- To suggest measures to improve biodiversity within the college campus.
- To monitor the energy consumption pattern of the college.
- To assess the quantity of water usage within the college campus.
- To suggest sustainable energy usage and water conservation practices.
- To find out various sources of organic and solid waste generation and mitigation possibilities.

GREEN AUDIT SUMMARY RESULTS

The green audit of 2021 covers the period from March 2021 to December 2021. However, Due to ongoing pandemic conditions and considering all the Covid-19 lockdown period, the college was closed almost for three months therefore data, information and the resources consumption and conservation do not reflect the true status. Hence, the Effective period for the audit is only NINE months.

1. LAND USAGE:

The green status of the land use in the GVPCEW with nearly 73% of the area under open uses can be conserved, the available open area for the different strata of the campus community is around 32.5 m^2 which is fairly good enough among similar institutions under private sector, the status is very **HIGH HEALTHY GREENERY**

The audit result indicates that about 32.4% of the open areas in the campus are covered with vegetation. The general pattern of the vegetation is **PERIPHERAL** and **SCATTERED.** In the terms of species diversity, number of the trees and biomass quantities the assessment was made and the result are as follows in the biodiversity report

2. BIODIVERSITY SURVEY:

By
Srichakra Pranav, Honey Seles & Hari Krishna of Green Paw in November 2021 in association with Green Waves Environmental Solutions

Objective 1: Documentation of Floral diversity in GVPCEW campus

The flora of the campus is located in a coastal plain known as Madhurawada Dome of Eastern Ghats. The surrounding area is an urban agglomeration and mainly dominated by semi thick vegetation and few species of dry deciduous forest. We have checklisted species of trees, species of shrubs and species of grasses that were recorded from the campus along with the plantations done by the organization. The survey results indicate that about 32.4% of the open areas in the total campus are covered with vegetation (both existing & avenue). The assessment was made in terms of species diversity, number of avenue trees and biomass quantities.

The Flora of the campus comprises 37 species of trees, 16 species of shrubs and herbs including various grasses, climbers and creepers. Most of the tree species are native, while most of the species in shrubs and herbs are a mixture of native and exotic species.

Trees Enumeration:

The tree species were enumerated and the results are presented in Table - 1 ,2 & 3. The results indicated that there are nearly 300 trees and shrubs of which the first five species account for 64% of trees and these include Teak, Jamun, Neem, Peltophorum, Coconut and Pongamia trees and flowering shrubs like hibiscus, crape jasmine. The avenue plantations in the campus act as major habitat for avifauna.

Biomass of Trees:

Woody biomass of the trees were estimated through ecological methods, and the top five species which were high in numbers have contributed significantly to the biomass. On the whole, all the tree strata together have contributed 592.3 tons of biomass, with a mean of 0.761 t/tree woody biomass.

Carbon Stocks:

With the tree biomass, the Carbon stocks in the campus lands were estimated using standard stock assessment methods based on the formula of Tree above C in ground biomass + C in Below ground Biomass + Soil Carbon. About 3974 tons of Carbon stocks are estimated to be in the campus greenery area. The scope of Biodiversity is good in the campus.

Table 1: Large trees and small trees recorded from the campus (bounded)

Tree species recorded as a part of Biodiversity Survey			
S.I.	Common Name	Vernacular Name	Scientific Name
1	Mahaneem	పెద్దమాను	Ailanthus excelsa
2	Frywood	దిరిసెన	Albizia lebbeck
3	Sitaphal	సీతాఫలం	Annona squamosa
4	Neem	వేప	Azadirachta indica
5	Earleaf Acacia	అకెసియ	Acacia auriculiformis
6	Golden Shower	రేలా	Cassia fistula
7	Papaya	బొప్పాయి	Carica papaya
8	Coconut	కొబ్బరి చెట్టు	Cocos nucifera
9	Button Mangrove	కొనాకర్పస్	Conocarpus erectus
10	Flame of forest	గుల్మొహర్	Delonix regia
11	Eucalyptus	జామాయిల్	Eucalyptus globulus
12	Peepal	రావి	Ficus Religiosa
13	River Tamarind	సుబాబుల్	Leucaena leucocephala
14	Bullet wood	బొగడ	Mimusops elengi
15	Indian Mulberry	తొగర	Morinda pubescens
16	Drumstick	ములగ చెట్టు	Moringa oleifera
17	Mango	మామిడి	Mangifera indica
18	Indian Cherry	పంచదార పళ్ళు	Muntingia calabura

19	False Asoka	అశోక	Polyalthia longifolia
20	Copper Pod	కొండ చింత	Peltophorum pterocarpum
21	Indian Gooseberry	ఉసిరి	Phyllanthus emblica
22	Indian Beech	కానుగ	Pongamia pinnata
23	Guava	జామ	Psidium guajava
24	Pomegranate	దానిమ్మ	Punica granatum
25	Rain Tree	నిద్ర గన్నేరు	Samanea saman
26	Jungle Badam	అడవి బాదాం	Sterculia foetida
27	Senna	సీమ తంగేడు	Senna siamea
28	African Tulip	గోనుగంట	Spathodea campanulata
29	Jamun	నేరేడు	Syzygium cumini
30	Crape Jasmine	నందివర్ధనం	Tabernaemontana divaricata
31	Tamarind	చింత	Tamarindus indica
32	Indian Almond	బాదం	Terminalia catappa
33	Arjuna	తెల్ల మద్ది	Terminalia arjuna
34	Teak	టేకు	Tectona grandis
35	Yellow Bells	సువర్ణ గన్నేరు	Tecoma stans
36	Portia	గంగరావి	Thespesia populnea
37	Royal Palm	రాయల్ పామ్	Roystonea regia

Table 2: Shrubs, climbers and Herbs recorded from the campus (excluding avenue plantations)

Shrubs and Herbs species recorded			
S.I.	Common Name	Vernacular Name	Scientific Name
1	Country Mallow	దువ్వెన బెండ	Abutilon indicum
2	Latjeera	ఉత్తరేణి	Achyranthes aspera

3	Peacock flower	రత్నగంధి	Caesalpinia pulcherrima
4	Gourd (wild)	అడవి దొండ	Coccinia indica
5	spiderwort	అమృతకాడ	Commelina benghalensis
6	Hibiscus	మందారం	HIbiscus rosa sinensis
7	Tulasi	తులసి	Ocimum tenuiflorum
8	Indigo	నీలిచెట్టు	Indigofera tinctoria
9	Lantana	తలంబ్రాల చెట్టు	Lantana camara
10	Coat buttons	గడ్డి చామంతి	Tridax procumbens
11	Moon seed	తిప్పతీగ	Tinospora cordifolia

Table 3: Grasses recorded from the campus

Grass species from the campus		
S.I.	Common Name	Scientific Name
1	Purple false brome	Brachypodium distachyon
2	Bermuda Grass	Cynodon barberi
3	Star grass	Cynodon dactylon
4	Basketgrass	Oplismenus burmannii
5	Oat grass	Themeda arguens

Objective 2: Documentation of Faunal diversity in the Campus

Fauna:Varied fauna has been observed as follows:

Table 4: Butterflies observed in the campus

Butterflies observed in the campus			
S.I.	Common Name	Scientific Name	Occurrence
1	Plain tiger	Danaus chrysippus	Common

2	Common Crow	Euploea core	Common
3	Double-branded crow	Euploea sylvester	Common
4	Mottled Emigrant	Catopsilia pyranthe	Common
5	Lemon Emigrant	Catopsilia pomona	Common
6	Danaid Eggfly	Hypolimnas misippus	Common
7	Common pierrot	Castalius rosimon	Common
8	Dark grass blue	Zizeeria karsandra	Common
9	Tawny coaster	Acraea terpsicore	Common
10	Blue Tiger	Tirumala limniace	Common
11	Crimson Rose	Pachliopta hector	Common

Table 5: Dragonflies and damsels species recorded in the campus

Dragonflies and damsels species recorded			
S.I.	Common Name	Scientific Name	Occurrence
1	Marsh dart	Ceriagrion coromandelianum	Common
2	Globe wanderer	Pantala flavescens	Common
3	Ground skimmer	Diplacodes trivialis	Common
4	Crimson marsh glider	Trithemis aurora	Common

Table 6: Bird species observed in the campus

Bird species observed			
S.I.	Common Name	Scientific Name	Occurrence
1	Common Myna	Acridotheres tristis	Common
2	Greater coucal	Centropus sinensis	Common
3	Common Tailor Bird	Orthotomus sutorius	Common

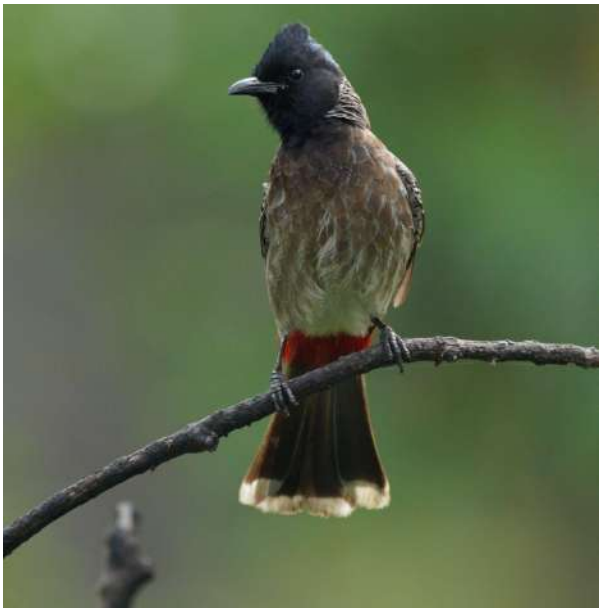
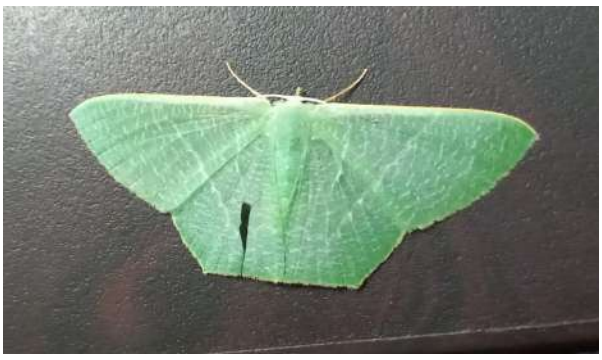
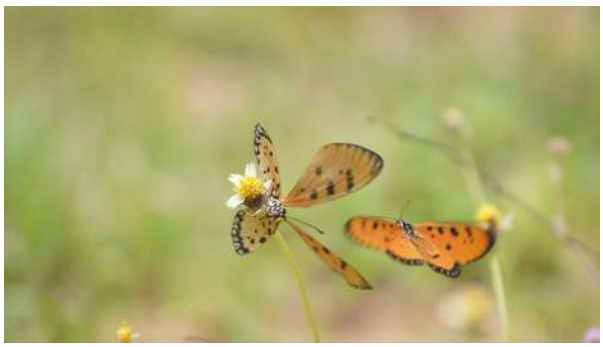
4	Black drongo	Dicrurus macrocercus	Common
5	Purple-rumped sunbird	Leptocoma zeylonica	Common
6	Black kite	Milvus migrans	Common
7	Jungle Crow	Corvus culminatus	Rare
8	Spotted dove	Spilopelia chinensis	Common
9	Indian Robin	Copsychus fulicatus	Common
10	Cattle egret	Bubulcus ibis	Common
11	Indian pond heron	Ardeola grayii	Common
12	Red-vented Bulbul	Pycnonotus cafer	Common
13	Asian Koel	Eudynamys scolopaceus	Rare
14	Indian shag	Phalacrocorax fuscicollis	Rare
15	Jungle babbler	Argya striata	Common
16	Alexandrine parakeet	Psittacula eupatria	Common
17	Indian golden oriole	Oriolus kundoo	Common

As per the information from locals snakes like Cobra, Rat snake, bronzebacks and vine snakes are observed. Garden lizards are observed on trails.

Recommendations:
Green Paw & ECCT team will be available to conduct programs like Bird watching and Butterfly walks as a part of Environmental Education programs. The possibilities shall be discussed for implementation.

We Thank the management of Gayatri Vidya Parishad College of Engineering for Women for providing us the opportunity to do the survey as a part of Green Audit.

The following are some pictures from the survey at the Campus in Visakhapatnam

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Bulbul</td><td>Bees on Flowers</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Overview of campus from ground</td><td>Teak plantations</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td colspan="2">Butterflies and moths spotted in the campus</td></tr>
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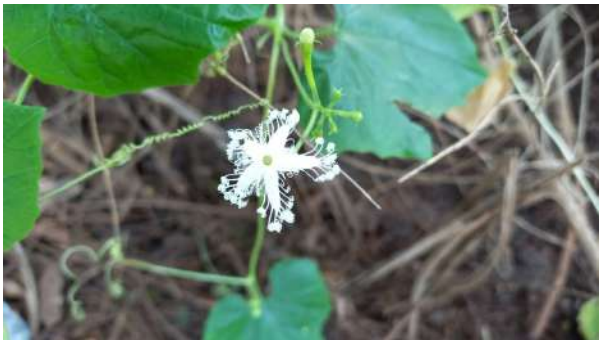
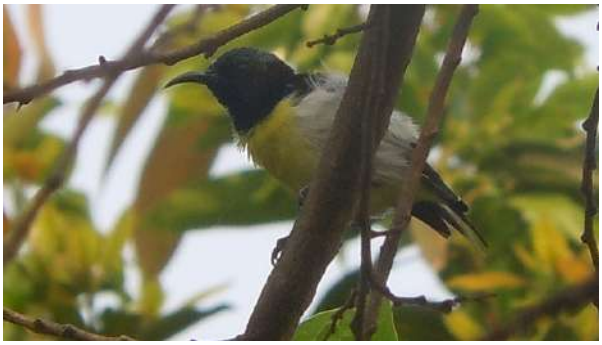
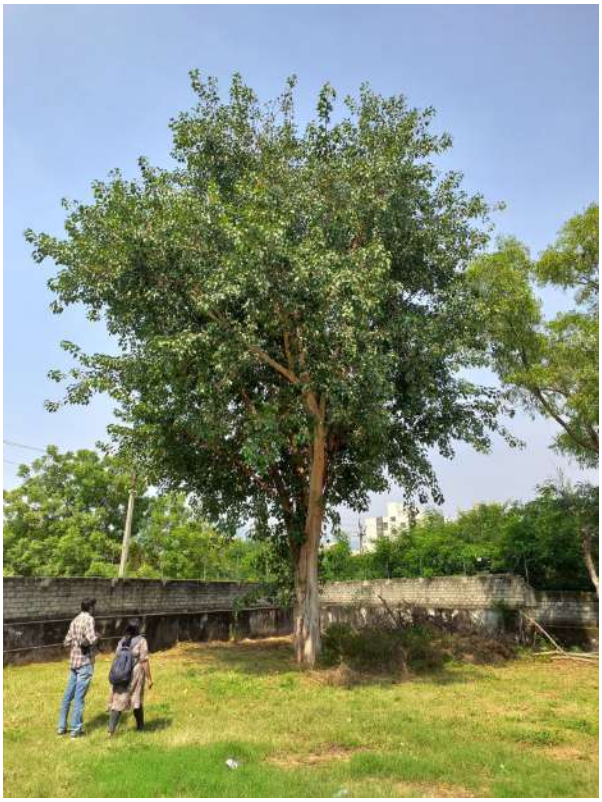
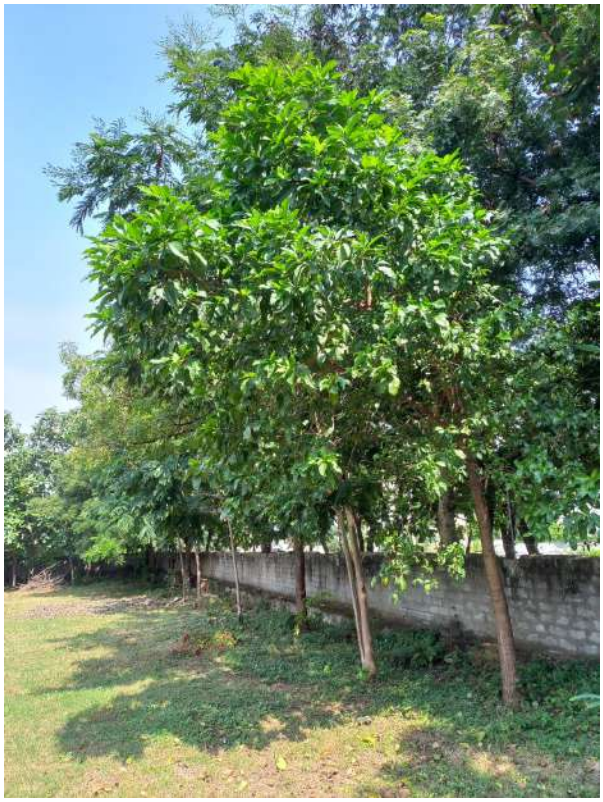
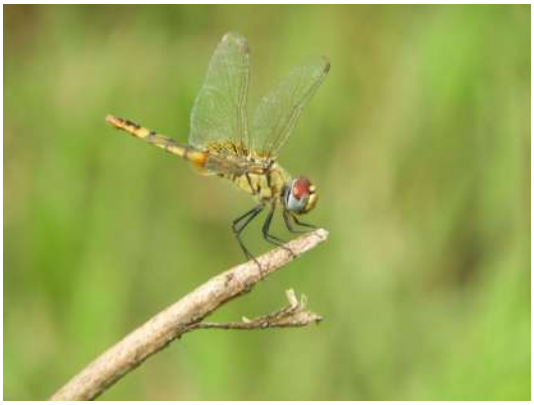
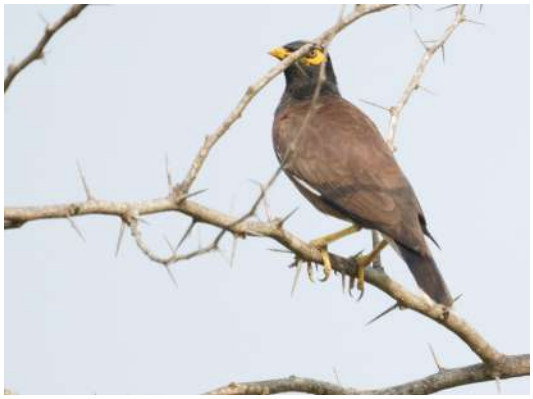
	
Wild flowers and vines	Decorative shrubs
	
Purple rumped sunbird	Shrubs

	
Peepal tree	Noni Tree

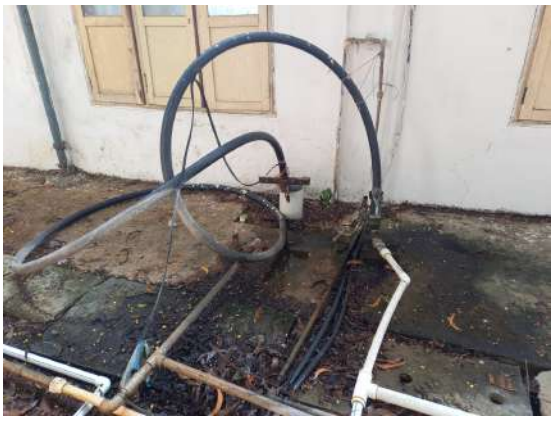
	
Common Dragonfly	Myna

3. WATER USAGE:

GVPCEW is well aware of the importance of water and has a dedicated water management cell. Water is used for different purposes like drinking, bathing, flushing, laboratories, housekeeping, cooking in canteen and greenery. For all the uses, GVPCEW depends upon ground water. GVPCEW taps around 25 KLD of water from 3 Bore wells and distribution of the water for different uses is as follows

No.	Purpose	Quantity [KLD]	% Total
1	Drinking	6	25
2	Other Domestic Uses	9	35
3	Laboratories & Other facilities	9	35
4	Greenery	1 [RO reject]	5

On the whole, the drinking water availability is at 1.2 liters/ head and 98% of the campus population stays in the campus for less than 8 hours, the drinking water availability is reasonably good compared to the standard of the 5 liters/ head / 24 HRS. The GVPCEW has a R.O. Plant with an installed capacity of 1000 liters/hour, reject water of approximately 20000 liters will be generated in a day . A half quantity of the rejected water is used for floor washes and remaining for greenery. The RO Plant water is also used for Hostels in the campus.



Two of the 3 borewells in the campus

4. ELECTRICITY USAGE

GVPCEW is one of the few institutions in India to have pioneered in the energy conservation and use of renewable energy sources. Basically it uses three types of energy resources:

A. **Power grid**
B. **Solar power plant**
C. **Diesel [HSD] Generator**

The institution during the audit year has consumed 2.9 lakhs units within the year with a mean average of 24,173 units per month. However, the monthly variations were very high and ranged from a low of 9356 units during lockdown month to a high of 33863 units in September. From September to March the consumption decreased gradually, despite the fact that the period may have peak academic activity. This indicates that the energy efficiency can be enhanced further in its use.

The declined power consumption in June and July indicates it could be reduce usage of air conditioners due to Covid restrictions. The institution has a total of 60 air Conditioners together have a cooling capacity of 120 tons. On the whole, the per capita electricity consumption in the institute is around 67 units/annum, which is reasonably good in educational institutions.

The institution has a solar power generation system that together constitutes a capacity of 20 KW and is connected to the grid. It also has 30KW of Wind power installed. Therefore, Energy units consumed from the public supply are exclusive of this power. Thus, addition of this power, hikes the per capita consumption by 600 units. To that extent, the carbon emissions are saved, despite other economic saving. The Audit team appreciates the efforts of the College to improve solar and wind power in the premises.

5. WASTE GENERATION:

The wastes generated from academic and administrative divisions only could be taken in to account, as the total institution could not be covered for certain limitations during this first audit. The wastes generated from the academic and administrative divisions are characterized into (a) Wet Waste;
(b) Paper & Board waste; (c) Metalic waste; (d) Plastic Waste; (e) Battery waste and (f) E-waste.

No.	Waste Type	Academic	Administrative	Disposal
1	Wet Waste	Collected separately	Collected separately	Compost
2	Paper & Board	Segregated	Segregated	Authorized Collectors.
3	Metallic Waste	Segregated	Segregated	
4	Plastic Waste	Segregated	Segregated	
5	Battery Waste	Segregated	Segregated	
6	E Waste	Segregated	Segregated	

The waste management is one area where the institution is focusing on application 3 R's principle and enabling the young learners for innovations.

SUMMARY OF RECOMMENDATIONS

Below are some recommendations based on general observations carried out throughout the campus. The recommendations are categorized with A being the most urgent where immediate actions are needed to be executed (first or second week of receiving this report). B can be 1 to 2 months after receiving this report, while C will depend on the availability of funds.

Recommendations		
Category A	Category B	Category C
Isolate or unplug loads from power when not in use (i.e. rechargeable equipment, computer and any other electronic devices with standby modes).	Establish Energy Efficiency and Conservation initiatives and management within the buildings. More renewable energy sources should be established in a phased manner.	Where applicable, replace all Double Frame light fittings (double tube) with Commendable LED lights throughout the building. Also remove unnecessary lights or reduce the number of lights per location.
Remove faulty light holders and bulbs or remove live wire from the sockets inside the light holder.	Renovate or improve the lighting control, i.e. add more switches to existing rooms/spaces where only one switch controls more than 10 lights, especially the lights in the conference/meeting room.	Replace all lights with energy efficient light bulbs
Remove any faulty appliances located in the campus.	Use fans in places where possible (especially in unsealed rooms, indoor corridors, conference rooms, etc.).	The conservation and efficiency mechanisms are tools for reducing energy consumption. Look into making the campus carbon neutral
Isolate or unplug faulty air conditioners if found within the buildings (working but no cold air coming out) and, OR service the air conditioner units quarterly.	Remove the air conditioner if the room is very poorly sealed (i.e. if the room has no seals on the door and frequently open at times).	Replace old existing outdoor air conditioner units with efficient ones (if funding is available).

ANNEXURES

Annexure F1

Land Audit List of the total flora

S.No	Names of Species
1	Tectona grandis
2	Millettia Pinnata
3	Syzygium cumini
4	Peltophorum pterocarpum
5	Azadirachta indica

Annexure F2

Documentation of biomass

Name of the specie	Number of species	Number of trees/specie
Documented in Biodiversity Survey		

Annexure F3

Population percent of trees

S.No	Name of the trees	Percentage of population
37 species of trees, 16 species of shrubs and herbs including various grasses, climbers and creepers as per Biodiversity Survey		

Annexure F4

Infrastructure Details:

Gayatri Vidya Parishad College of Engineering for Women						
No. Blocks	1	2	3	4	5	6
Name of blocks	Block -A	Block –B	Block -C	Block -E	**Block –D (hostel)**	**Block –F (hostel)**
Floor for each block	G+3	G+3	G+3	G+2	G+3	G+4
No, of classrooms /floor	3	2	-	2	10 rooms	15 rooms
No. of labs/floor	2	1	2	1	-	-
No. of Teaching staff	12	29	20	18	-	-
No. of Non teaching staff	9	8	10	11	-	-
No. of Students	600	500	120	360	-	-

Annexure F5

Area under open land use

1	Road type 1 (total Length x Width)	425ft × 24 ft
2	Roads type 2 (total length x Width)	367ft × 26ft
3	Parks and Gardens	4 acres
4	Parking lots	Two
5	Other play fields	3 Basket ball court, Badminton court and Play ground
6	Others	

Annexure F6

Water Audit- College

S. n	Tap no./ name	Type of tap (plastic/steel)	Condition (poor/ moderate /good)	Average no. of people using per day	Average time per head/day	Average amount of water/ minute	Leaking or Not	If leaking, average amount of water leaking per minute
1	Wash Basin	15+16	Moderate	1520	2 minutes	500 ml	Not leaking	----
2	Drinking water unit/cooler	1+8	Moderate	1520	2 minutes	2.5 litre	Not leaking	----
3	Toilet Tap	31	Moderate	1520	2 minutes	2 litre	Not leaking	----
4	Toilet flush	28	Moderate	1520	3 minutes	5 litres	Not leaking	----
5	Gardening sprinklers	----	----	----	----	----	----	----
6	Others							

1	Number of Natural sources of water	Ground water	
2	No. of Water storage tanks (overhead/underground)	2 water tank (10000 +5000 litres capacity) total 15000 L capacity	
3	Number of Borewells	2	
4	Municipal Water Facility (If Yes how many litres of water used per day)	NO	
5	Reverse osmosis water plant	Purification,1000L per hour	

Water Audit- Hostel

S. n	Tap no./ name	Type of tap (plastic/s teel)	Condition (poor/ moderate /good)	Average no. of people using per day	Average time per head/day	Average amount of water/ minute	Leaking or Not	If leaking, average amount of water leaking per minute
1	Wash Basin	53+25	Modera te	280	5 minutes	1 litre	Not leaking	-----
2	Drinking water unit/cooler	6 + 2	Modera te	280	8 minutes	2 litres	Not leaking	---
3	Toilet Tap	91+35	Modera te	280	15 minutes for bath	1 litre	Not leaking	---
4	Toilet flush	51	---	280	5 minutes	3 litres	Not leaking	---
5	Gardening sprinklers	---	---	---	---	---	---	---
6	Others							
7								

1	Number of Natural sources of water	Ground water
2	No. of Water storage tanks (overhead/underground)	4 water tank 10000 litres capacity
3	Number of Borewells	1
4	Municipal Water Facility (If Yes how many litres of water used per day)	NO

Annexure F7

Energy Audit

Type of Electricity	Capacity	Average Daily Consumption	Average Monthly Consumption	Types of use
Thermal Electricity				
Solar Power	20KW	100 units	3000 units	Fans and lights
Wind Power	30KW	50units	1500 units	Fans and lights
Generator/ Alternative Fuel	125KVA	4 litres	120 litres	Fans and lights

Electronic Capacity and its usage- College

Appliance Equipment	Number	Size	BEE
Air conditioners	60	2T	5 STAR
Refrigerators	2	165 lts	4 STAR
Tube Lights	413	40V	---
CFL Bulbs	9+1+ 47 = 57	36W+22W+11W	
LED Lights	64+67+55=186	36W+22W+9W	5 STAR
Fans	516	60W	---
Incandescent Bulbs	0	---	---

Electronic Capacity and its usage- Hostel

Appliance Equipment	Number	Size	BEE
Air conditioners	---	---	---
Refrigerators	2		
Tube Lights	166	40V	---
CFL Bulbs	141	36W+22W+11W	
LED Lights	58	36W+22W+9W	5 STAR
Fans	331	60W	---
Incandescent Bulbs	0	---	---

Annexure F8

Indoor Lighting

No.	Location No.	Type	Use	Construction type	Windows/doors/ skylights/wall paint reflection	No. of light points	Hours of uses/ week
1		Class rooms	Lectures	Concrete	5 Windows per class room/ 2 doors per class room wall paint- good condition	5 points per class room	42 hours
2		Verandah/ corridor		Concrete	---		42 hours
3		Staircase		Concrete	---		42 hours
4		Canteen	Food	Concrete			5 Hours
5		Lab	Practical classes	Concrete			42 hours
6		Office	Administrative works	Concrete			42 hours

1. Classroom, verandah, , staircase, canteen, lab, office, toilet etc.

2. Room use: List primary activity such as lecture hall, office, art, music, conference, and home economics.
3. Concrete, tile roof, asbestos, with or without ceiling etc.
4. Number of windows and approximate size.
5. Availability of skylight- Poor/Average/Plenty.
6. Wall paint color, neatness (dirty or clean) etc.
7. Bulb Count/ Watts: Identify the type (incandescent, fluorescent tube, CFL, LED) and number of bulbs and wattage of each bulb.
8. Approximately calculate the no. of hours of use for each light (average use in a week) and record it separately.

Outdoor Lighting

No.	Location No.	Type	Use	Tree Cover	No. of Light	Hours of uses/ week	Remarks
1	Outdoor in Campus	LED	Outdoor lighting	Moderate	20W-16 Nos 40W-12 Nos 100W-7 Nos 150W- 4Nos 200W-2Nos	42 Hrs/week 38hrs/week 36 hrs/week 84 hrs/week 84 hrs/week	---

- Play ground, main road, byroad to library, garden, behind a building etc.
- List primary activities such as badminton court, football court, walkway etc.
- Whether the area has tree cover blocking direct sunlight: rich/ moderate/poor.
- Bulb Count/ Watts: Identify the type (incandescent, fluorescent tube, CFL, LED, Sodium vapor lamp, neon bulb etc.) and number of bulbs and wattage of each bulb.
- Approximately calculate the no. of hours of use for each light (average use in a week) and record it separately

No.	Location No.	Type	Name of Equipment/Instrument/ appliance	Usage pattern	Power rating	Monthly use in hours	No. of average days of use in a year
1	Behind Block -A	Fuel	4-strok diesel engine	Lab	3.7Kw	1 hr	12 days
2	Behind Block -A	Machine	Pelton turbine	Lab	21A,11 KW	1 hr	12 days
3	Block -C	Machine	D.C motor coupled with series generator	Lab	3hp	4hr	30days
4	Block -C	Machine	Single phase induction motor	Lab	5 hp	4 hr	30days
5	Block -C	Machine	Alternator	Lab	3.05kva	12 hr	30 days
6	Block -C	Machine	Induction motor	Lab	0.75	4 hr	30 days
7	Behind Block -A	Machine	Francise turbine	Lab	11 kw,20.5 A	1hr	12 days
8	Behind Block -A	Machine	Single stage centrifugal pump	Lab	2.1A, 1KW	1hr	12 days
9	Block -C	Machine	D.C shunt motor	Lab	5hp	40hr	50 days
10	Block -C	Machine	Synchronous motor	Lab	3hp	4hr	30 days
11	Block -C	Machine	2 identical machines	Lab	1.8kw	4 hr	30 days

Note:

- Check the power rating of equipment, instruments or appliances from the manufacturers label fitted on the backside of the equipment.
- Collect the usage time and pattern from the respective persons
- Take the average time of usage over a period of one month or 6 month period

Meter Reading Data Entry Form

Meter No.: SC .No VSP834……
Location:S.No 4/P Madhurawada
,visakhapatnam…….

Weather Information
…….

Date & Day Description	Time	Reading (Net)	Comments
05-11-2021	10:20 AM	33772	
05-10-2021	10:30AM	35984	
05-09-2021	10:20AM	34056	
05-08-2021	10:45AM	24468	
05-07-2021	10:45AM	10302	
05-06-2021	11:30AM	11504	

Annexure F9

Fuel Consumption

No.	Category	No. of uses					
		Inst. Bus	Pub. Bus	4 wheeler	3 wheeler	2 wheeler	Other
1	Teaching Staff	35	21	15	8	40	---
2	Non - Teaching staff	4	4	---	1	6	----
3	Students	92	91	5	15	25	61
4	Others	---	---	----	---	---	----

Annexure F10

Wise Waste

Categories of waste from campus				
Dry Waste	Wet Waste	Domestic Waste	E Waste	Hazardous/ Bio medical waste if any
Paper	Vegetable peels	Kitchen waste, toilet waste water, etc.	Parts of computer hardware like key board, mouse etc.	Nil
Chips and biscuit Wrappers, cold drink bottles, disposable cups and plates	Unused food		Chargers, Chords and wires	Nil
Plastic bags	Food Waste			Nil

		
Generator	RO Plant	Percolation tanks

		
Audit team in campus	Green Cover	Solar and wind power units

Conclusion:

A. **GVPCEW** by the time the next Audit is initiated should review and revise its environmental policy which will be the basis of the next green audit.
B. The audit team appreciates the well versioned layout planning of the institute, ensuring 73% of the land area under open category users.
C. The audit team appreciates the efforts of various Technology and Eco clubs of GVPCEW working on improvement of Eco friendly practices.
D. The greenery is very good in terms of extent and numbers, effective planning can enhance the diversity, productivity and sequester more carbon. Nice healthy atmosphere with Biodiversity is present in the campus.
E. Solar and Wind power usage has provided a positive factor in reducing carbon emissions.
F. Water management is very good, and needs appreciation of using some amounts of R.O reject water for greenery and floor washes.
G. Although the waste management is in place, it needs more documentation of wastes related to metal plastic, battery and E waste.
H. More emphasis and encouragement need to be given to the young learners and their mentors for more innovations.

Our Sincere Thanks to

Management and Staff
Gayatri Vidya Parishad College of Engineering for Women

AUDIT

by

Green Waves Environmental Solutions

TEAM

N. Aditya Madhav

Resource Person

Green Waves Environmental Solutions

K. Honey Seles

Green Project's Coordinator

Green Waves Environmental Solutions

Members

Ecotech Club of GVPCEW