YADAVA COLLEGE

(Autonomous)

Govindarajan Campus Thiruppalai Madurai - 625014.



GREEN AUDIT REPORT 2019-2020



Note: For Criterion 7 Metric No. 7.1.2 to 7.1.7

Prepared by

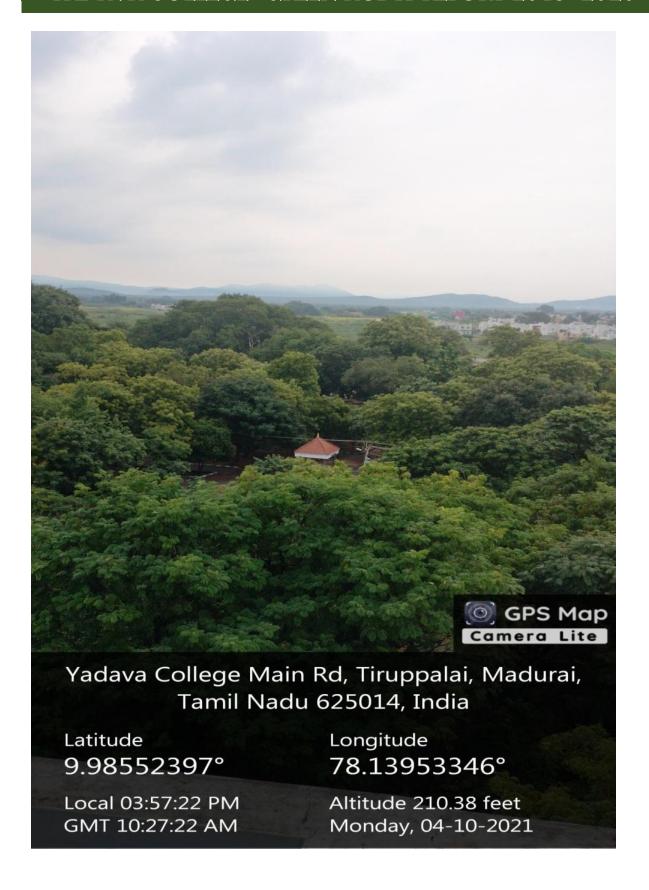
Green Audit Committee Members of the College

List of Staff members involved in Green Audit 2019-20

- Dr. A. Krishnaveni, Asst. Prof & Head, Department of Chemistry
- Mr. N. Yasoth Kumar, Asst. Prof & Head, Dept. of Botany
- Mr. G. Rajkumar, Asst. Prof. in Dept. of Zoology
- Dr. S. Kasthuri Rengamani, Asst. Prof. in Dept. of Biochemistry
- Ms. G. Kavitha Asst. Prof. in Dept. of Bio chemistry
- Dr. B. Ramanathan, Asst. Prof. in Dept. of Zoology
- Dr. N. Prabakaran, Asst. Prof. in Dept. of Chemistry
- Dr. P. Muthuraman, Asst. Prof. in Dept. of. Chemistry
- Mrs. V. Valarmathi, Asst. Prof. in Dept. of Physics
- Mrs. J. JABEEN, Asst. Prof. in Dept. of Microbiology
- Ms. S. SURYA, Lecturer in Dept. of Botany







Chapter-1Introduction

Yadava College, Madurai, Tamilnadu, committed to the cause of quality learning of human being and their empowerment was established on 1969 by the backward Yadava Community people. This renowned institution is the first backward community founded government aided men's college later to contribute to the transformation of society and the challenges of being socially conscious, socially responsible and to maintain the gender equality it facelifttoCo-education College in the southern region of Tamil Nadu, affiliated to Madurai Kamaraj University, is an Arts and Science College.

Situated in the rural urban fringe of Madurai city, the College has 3019 students, 158 faculty members and 42 non-teaching staff at present. This institution has always opened its doors to beneficiaries irrespective of caste, creed and community and works tirelessly towards the building of a better and knowledgeable nation.

The College has been the recipient of several awards and honours over the decades, including the prestigious National best teacher and best scholar Award in the state. First time, the college was accredited A level by the NAAC at 2006 and granted the Autonomous status. Re accredited with A level at its 2nd cycle 2011.

The college pays special attention to inculcate values in the students at every opportunity. Students are encouraged to join the NSS, NCC and physical education so that they may contribute in a meaningful way to national development and the society. Green card system (GCS) is a unique endeavour of the college and is a curriculam enrichment activity aimed at reaching to fill the gap between the parents, students and teachers. The faculty makes optimum use of the Information and Communication Technology [ICT] and the college has made a conscious effort to invest and built a

greenery campus. As the date of 2021, the college has 22 departments offering 11 regular and 11 self-financing UG programmes, 3 regular and 4 self-financing PG programmes and 3Ph.D programmes.

1.1. Vision and Mission statement of the College

Vision

Yadava College envisions a life-oriented education that empowers students to respond proactively to social concerns and work for the integrity of creation, thereby building a civilized society and advancing the Kingdom of democracy as envisaged by the book of "Bhagavat Gita"

1.2. Objectives of the College

- To equip the students with updated subject knowledge in the programmes.
- To bring out the innate talents of the students.
- To instill confidence among the taught to take up different jobs.
- To mould students as self-employable through Job-oriented courses.
- To develop the soft skills of the students through intensive training in communicative skills, leadership quality, personality development and character and capacity building
- To adapt the students and teachers to the changes in new subjects and topics with suitable trainings so as to enable them to face the competitions in the job market at home and abroad
- To concentrate on the overall development of individuals to shape them as good citizens.
- The college provides priority to realize gender parity and empower men and women so as to enable them to face challenges in their lives. Your browser may not support display of this image.

1.3. Total Campus Area & College Building Spread Area

Campus area	39.57 acre
Built up area	246086 sq. ft

1.4 Campus infrastructure Facilities

Class rooms
Laboratories- including language lab
Seminar Halls
Nagendiranar Auditorium&RajendranYadav Auditorium
CCTV monitored in the Principal's office and the library
ensures discipline and security of resources
Information display and notification
D-space Digital Repository Library; computer with internet
facility
Canteen Basket Ball & Volleyball Court
Gymnasium
Badminton &Tennis Court
Library
Table Tennis Board, Chess board
Caroms Hostel for Students and Staff

Chapter-2 Audit Stage

Green auditing was done by students, teaching and non-teaching staff. The green audit began with the teams walking through all the different facilities at the college, determining the different types of appliances and utilities (lights, taps, toilets, fridges, etc.) as well as measuring the usage per item (Watts indicated on the appliance or measuring water from a tap) and identifying the relevant consumption patterns (such as how often an appliance is used) and the impact that they have.

Data collection was done in the sectors such as energy, medicinal plants and trees. The whole process was completed within six months period, i.e.,January to June, 2021.

2.1 Student groups and staffs involved

Students from the departments of Biochemistryand staff members from life science department took part in the data collection of green auditing.

List of Staff members in Plant Collection

Mr. N. YASOTH KUMAR, Asst. Prof & Head, Dept. of Botany

Dr. S. KASTHURI RENGAMANI, Asst. Prof. in Biochemistry

Mrs. J. JABEEN, Asst. Prof. in Microbiology

Ms. S. SURYA, Lecturer in Botany

Mr. G. Rajkumar, Asst. Prof. in Zoology

Dr. B. Ramanathan, Asst. Prof. in Zoology

Dr. N. Prabakaran, Asst. Prof. in Chemistry

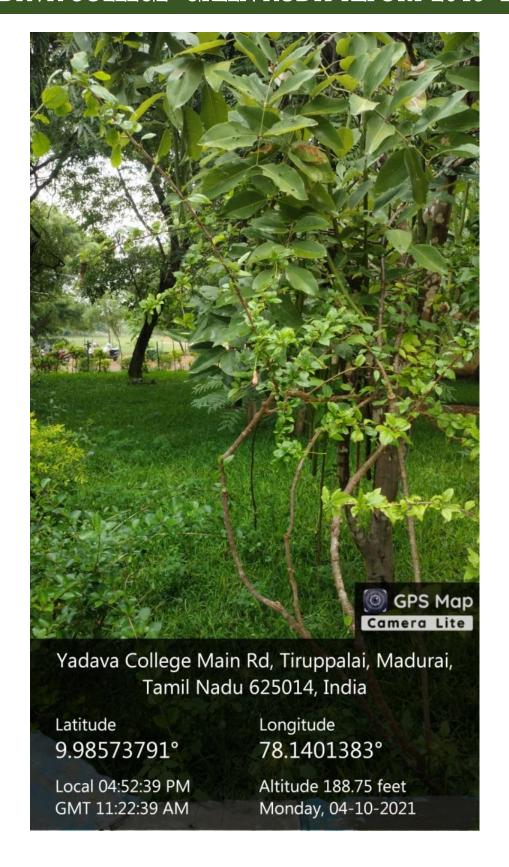
Dr. P. Muthuraman, Asst. Prof. in Chemistry

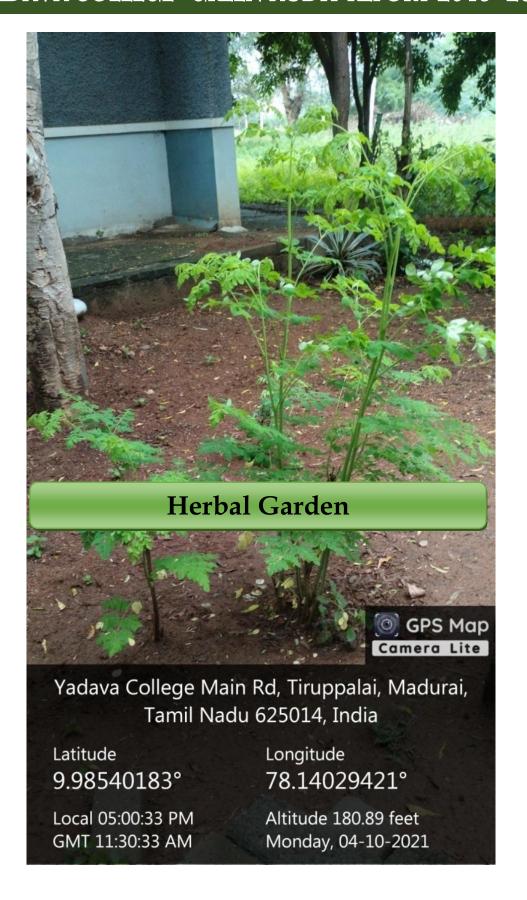
A. BALAKRISHNAN, Lab Assistant in Botany

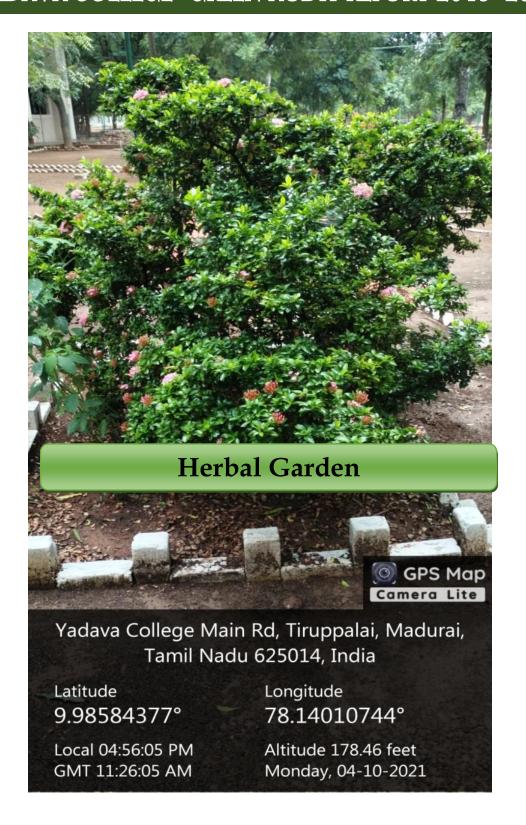
III. B.Sc.BIOCHEMISTRY

List of studentsin Plant Collection

- 1. MEHAR NISHA. K
- 2. ASHA BHARATHI. N
- 3. SHARMILI. S
- 4. PAVITHRA. T
- 5. DIVYA. M
- 6. TAMILARASI. M
- 7. RENUKA DEVI. R
- 8. MEENA. K
- 9. SNEHA. T
- 10. PUSHPA. R
- 11. RUBASHREE. M
- 12. MANO. M
- 13. INDHUMATHI. P
- 14. PETCHIAMMAL. V
- 15. RAJESWARI. K
- 16. NANDHINI. A
- 17. EGAI VENDHAN .J
- 18. SUTHISH THANIL.M
- 19. RAJESH.A
- 20. PANDIARAJAN. L







Student clubs and forums that participated in the green auditing

> NSS, NCC, Eco club, Department level associations and volunteers from hostels.

3.3 Comments onsite inspection

Site inspection was done along with students and staff. It was quite interesting and fascinating. It was an environmental awareness programme for the students who participated in the green auditing. The experience of green auditing was a first time experience for most of the students. They shared their expectations about a green campus and gave suggestions for the audit recommendations.

3.4 Review of documents and records

Documents such as admission registers, registers of electricity and water charge remittance, furniture register, laboratory equipment registers, purchase register, audited statements, and office registers were examined and data was collected. College calendars, college magazines, annual report of the college and NAAC self-assessment reports, UGC report etc. were also verified as part of data collection.

3.5 Review of policies

Discussions were made with the college management regarding their policies on environmental management. Future plans of the college were also discussed. YADAVA COLLEGE, MADURAI - GREEN AUDITING 2014 21

3.6 Interviews

In order to collect information for green auditing different audit groups interviewed office staff, Principal, Teaching and non-teaching staff, studentsandparents. Discussions were also made with the PTA office bearers to clarify doubts regarding certain points.

3.7 Site inspection

The college and its premises were visited and analyzed by the audit-teams several times to gather information. Campus trees were counted and identified, herbal garden, play grounds, canteen, library, office rooms and parking grounds were also examined to collect data.

List of Medicinal Plants Identified

S. No	BotanicalName	VernacularName	NoofEachSpecies
1.	Corallocarpusepigaea	aakaasagarudan	11
2.	Solanumerianthum	aanaisundaikkai	14
3.	Spilanthescalva	aangaaravalli	3
4.	Oroxylumindicum	achi	4
5.	Aristolochiaindica	adagam	7
6.	Pupalialappacea	adai-otti	9
7.	Jatrophaglandulifera	adalai	8
8.	Brideliaretusa	adamarudu	6
9.	Adhatodavasica	adathodai	10
10.	Justiciaadhatoda	adatoda	5
11.	Cratevanurvala	adicharanam	7
12.	Cappariszeylanica	adondai	8
13.	Daturafastuosa	adukkumattai	4
14.	Tabernaemontana divaricata	adukkunandiyavattai 4	
15.	Chukrasiatabularis	agil 4	
16.	Alangiumsalviifolium	ainkolam	1
17.	Lawsoniainermis	aivanam 2	
18.	Lawsoniainermis	aivani 1	
19.	Pistiastratiotes	akayat-tamarai	1
20.	Plumbagoindica	akkini	1

21.	Dilleniaindica	akku 2	
22.	Ficusbenghalensis	al	2
23.	Arengawightii	alampanei	3
24.	Ficusbenghalensis	alamaram	3
25.	Canthiumdicoccum	alampamaram	2
26.	Arengawightii	alampanai	2
27.	Neriumodorum	alari	10
28.	Neriumindicum	alari	10
29.	Alangiumsalviifolium	alincil	2
30.	Nymphaeapubescens	alli	13
31.	Nymphaealotus	allitamarai	15
32.	Nymphaeanouchali	allittamarai	12
33.	Manihotutilissima	al-vallik-kizhangu	2
34.	Allophylusserratus	amalai	2
35.	Ricinuscommunis	amanakku	2
36.	Euphorbiapilulifera	amaumpatcheharisee	2
37.	Nelumbonucifera	ambal	2
38.	Stereospermumcolais	ambu	4
39.	Euphorbiahirta	ammanpaccarici	1
40.	Nymphaealotus	ampal	2
41.	Withaniasomnifera	amukkara	3
42.	Withaniasomnifera	amukkira	1
43.	Solanumferox	anaiccuntai2	2
44.	Laporteacrenulata	anaichorian	4
45.	Lanneacoromandelica	anaikarai	7
46.	Sterculiavillosa	anainar	6
47.	Glycosmis cochinchinensis	anam	5
48.	Glycosmisarborea	anam	4
49.	Gnetumula	anapendu	8
50.	Ananascomosus	anashap-pazham	3
51.	Elephantopusscaber	anashovadi	1
52.	Elephantopusscaber	anattuccivan 1	
53.	Anacardium occidentale	andimangottai	3
54.	Caralliabrachiata	andimiriam 2	
55.	Clerodendrumserratum	angaravalli	5
56.	Spilanthescalva	angaravalli 7	
57.	Annonareticulata	aninuna	6

58.	Ananassativus	annaci	4
59.	Ageratumconyzoides	appakkoti	3
60.	Cissampelospareira	appatta	2
61.	Neriumindicum	arali	1
62.	Neriumodorum	arali	4
63.	Premnaintegrifolia	arani	5
64.	Teramnuslabialis	araniyakulattikai	7
65.	Ficusreligiosa	arasu	8
66.	Alpiniagalanga	arattai	5
67.	Anthocephalus cadamba	arattam	4
68.	Lantanacamara	arippu	3
69.	Hydnocarpusalpina	arruccancalai	2
70.	Murrayapaniculata	arruppancu	1
71.	Humboldtiavahliana	arruvanci	2
72.	Cynodondactylon	arugampul	3
73.	Cynodondactylon	arukampul	6
74.	Garugapinnata	arunelli	5
75.	Marantaarundinacea	aruruttukkilangu	4
76.	Rutachalepensis	aruvada	3
77.	Rutachalepensis	arvada	2
78.	Rutagraveolens	arvada	1
79.	Rutagraveolens	arvata	1
80.	Saracaasoca	asoka	1
81.	Saracaasoca	asokapattai	3
82.	Polyalthialongifolia	assothi	4
83.	Ficusreligiosa	asvattam	3
84.	Polygonumglabrum	atalari	5
85.	Adhatodavasica	atatotai	7
86.	Adhatodazeylanica	atatotai	5
87.	Sidaretusa	athiballachedi	5
88.	Cappariszeylanica	atontai	4
89.	Salixtetrasperma	atrupalai	6
90.	Annonasquamosa	atta	6
91.	Boswelliaserrata	attam	3
92.	Ficusracemosa	atthi	4
93.	Bauhiniaracemosa	atti 5	
94.	Ficusglomerata	atti	6

95.	Ficusracemosa	atti	2
96.	Hydnocarpusalpina	attuccankilai	3
97.	Ipomoeapes-caprae	attukkal	3
98.	Croton bonplandianum	Attupuntu	3
99.	Tabernaemontana divaricata	atukkunantiyarvattai	4
100.	Aristolochiabracteata	atutintappalai	15
101.	Corallocarpusepigaea	-	6

List of Trees Identified During Green Auditing

S. No	BotanicalName	Family	Vernacular Name	No of EachSpe cies
1	Eucalyptustereticornis. Smith	Myrtaceae	Thailamaram	40
2	Syzygiumcumini.L	Myrtaceae	Navalmaram	10
3	Morindatinctoria.Roxb.	Rubiaceae	Manjanathi	12
4.	Annonasquamosa . L	Annonaceae	Sita	2
5.	Citrusmedica .L	Rutaceae	Narthangai	1
6.	Aeglemarmelos(L.), Corr.Serr	Rutaceae	Vilvam	2
7.	AzadirachtaindicaA.Juss.	Meliaceae	Vembu	110
8.	CocosnuciferaL.	Araceae	Thennai	5
9.	Ficusbenghalensis L.	Moraceae	Alamaram	2
10.	PhyllanthusemblicaL.	Euphorbiaceae	Nelli	5
11.	Psidiumguajava L.	Myrtaceae	Koya	2
12.	Punicagranatum L.	Punicaceae	Mathulai.	1
13.	Tamarindusindica L.	Caesalpinaceae	Puliamaram	10
14.	Albiziaamara (Roxb).Boivin	Mimosaceae	Usilai	-

15.	Albizialebbeck(L).Benth	Mimosaceae	Vaagai	3
16.	Pongamiapinnata(L).	Fabaceae	Pungamaram	60
17.	Musaparadisiacal L.	Musaceae	Vaalai	10
18.	Borassusflabellifer L.	Arecaceae	Panai	1
19.	Bauhiniaracemosa.Lam	Caesalpinaceae	Mantharai	1
20.	Terminaliaarjuna W.A	Combretaceae	Marutham	1
21.	Holopteleaintegrifolia	Ulmaceae	Aavimaram	2
22.	CappariszeylanicaL.	Capparaceae	Mavilangam	-
23.	Mimusopselengi Linn.	Sapotaceae	Magilamaram	5
24.	Tectonagrandis	Verbenaceae	Teek	3
25.	Ficusreligiosa Linn	Moraceae	Arasamaram	4
26.	FicusrecemosaLinn	Moraceae	kalathi	5
27.	AlstoniascholarisL.Rr	Apocynaceae	Aazhilaipalai	3
28.	Acaciapennata.Linn	Mimosaceae	Kuvapul	3
29.	Pithecellobiumducle	Fabaceae	Kodikaipuli	5
	.Roxb			
30.	ThespesiapopulneaL.	Malvaceae	Poovarasu	3
31.	Couroupitaguianensis	Lecythidaceae	Nagalingam	2
32.	Prosopis cinerariaL.druce	Fabaceae	Vannimaram	1
33.	FicusmicrocarpaL.f	Moraceae	Ichimaram	5
34.	Lanneacoromandelica (Houtt.merr)	Anacardiaceae	Uthiyamaram	6
35.	MadhucalongifoliaJ.F	Sapotaceae	Iluppaimaram	3

36.	MillingtoniahortensisL.F	Bignoniaceae	Panneerpoo	2
37.	Ceibapentandra L.	Malvaceae	Elavampanchu	1
38.	Phoenixsylvestris (L.Roxb)	Arecaceae	Ichamaram	1
39.	BouhiniarecemosaLam.	Fabaceae	Idithangi	1
40.	Caryotaurens.L	Arecaceae	Kunthalpanai	1
41.	Casuarinasequisetifolia	Casurarinaceae	Savukku	2
42.	Peltophorumpterocarpum(Dc.k)	Fabaceae	Manjalkonrai	48
43.	Polyalthialongifolia	Annonaceae	Nettilingam	15
44.	Mangiferaindica	Anacardiaceae	Maamaram	2
45.	Pisoniaalba	Nyctaginaceae	Ilachakattai	2
46.	Vachellialeucophloea (Roxb)	Fabaceae	Velvelmaram	3
47.	Cycascircinalis.L	Cycadaceae	Cycas	1
48.	ManilkarazapotaL.P	Sapotaceae	Sapota	1
49.	Swieteniamahagoni	Meliaceae	Mahogany	
50.	Phyllanthusacidus L.Skeels	Phyllanthaceae	Arainellikkai	2
51.	ButeamonospermaL.	Fabaceae	Parasumaram	-

Key findings and observations

a) Water

Water uses different

- Number of water treatment system in place-11
- ❖ Water cooler with drinking water filtration is installed-8
- ❖ Number of urinals and toilets–118
- Number of bathrooms-89
- ❖ Number of watert aps −232(a few are leaky)
- **♦** Number of wells−1
- Quantity of water pumped–12000-15000 liters/day
- ❖ Water charges paid−Rs.15000/Month
- ❖ Water use in hostels −45000liters/day(total-60000liters)



b) Energy

- ElectricitychargesRs.1,45,000/month
- Cost of Gas cylinders used Rs.1873/month
- ❖ Cost of generator f uel−Rs.15000/month
- ❖ Number of CFL bulbs −101(1947.80kwh)
- ❖ Number of LED bulbs–100(6.66kwh)
- **\$** Fans-630(6652.54kwh)
- **♦** ACs−39(7722kwh)
- Computers-370(kwh)
- **♦** Waterpumps–7
- **❖** Tubes–737
- Photocopier-7(200.78kwh)
- Printers-50
- **♦** LCDprojector−14
- **❖** Television–7(22.4kwh)
- ♦ Numberofinverters–4 (528kwh)

c) Waste

- Classrooms-95
- Otherrooms-6
- Number of hostel inmates- 1075
- ❖ Number of Garbage dumps−2
- Number of toilets-168
- ❖ E-wastes-computers, electrical and electronic parts—Disposal by selling
- Plastic waste-disposal by selling
- Solidwastes—Damagedfurniture,paperwaste,paperplates,foodwastes toMunicipalwastecollection centers
- Chemical wastes –Laboratory waste
- ❖ Wastewater–washing, urinals ,bathrooms
- ❖ Glass waste–Broken glass wares from the labs





d) Carbon footprint

No. persons using cycles -22

No. persons using cars -27

No. persons uses two wheelers – 289

Persons using other transportations – 2786

No. visitors per day - 25

Money spent for transportation by per person per day – Rs.40/-

No of LPG cylinders used per month – 60 (Rs. 1,02, 000/Month)

Average amount of fuel used per month for the operation of generators – 150 L (Rs. 15000/-)



Evaluation of findings

Water

60000 liters of water is used per day by the college for its different uses. The main source of water is ground water. 150 L of water per day is lost through the leaking of pipes. This can be prevented and other sources of water loss may be identified. The water treatment system has already installed in hostels and all buildings so the amount of water lost through pollution have been prevented. A major preference to the recycling of water may be adopted in the college for an efficient water management. Awareness programmes for the management of sustainable water use will be highly efficient in this college. Efficient water saving devices should be installed in all toilets. New toilets that are to be installed should have a dual flush system in place. Water management systems are to be introduced in the urinals. Some alternatives include spray taps, which can save about 80% of water and energy used for hand washing. Consider carrying out meter readings on a regular basis (e.g. bimonthly) in order to monitor water usage.

Existing water management methods in the campus

- ➤ Rain water harvesting system (11)
- > Awareness boards are displayed to save water



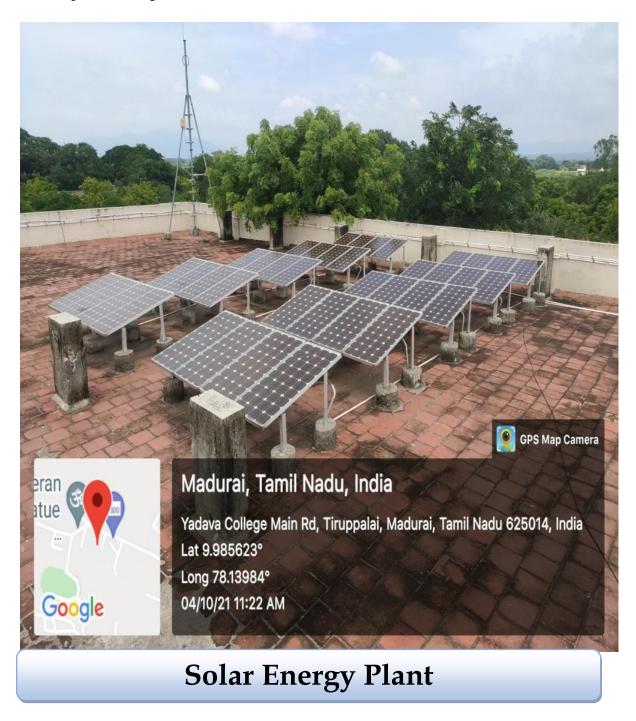


Rain Water Harvesting

Energy

The total energy utilization of the college for different purposes is approximately 16800.27 kwh/month. A hybrid source of energy comprising solar type of nonconventional category of energy will be a good energy management system for the college. Electricity charges per month is Rs.1,45,000/month. Energy saving through the replacement of incandescent bulbs to LED light may be a good energy management system for the college. Awareness programmes for the stakeholders to save energy may also increase sustainability in the utilization of various energy source. Although staff are encouraged to switch off their own lights, monitors and other equipment, the House maintenance team should carry out a lock down of the building at the end of every day and switch off any lights or equipment that have been left on. All the incandescent

bulbs have to be replaced by low energy bulbs. Lighting in the library should be predominately LEDs and energy saving bulbs. The College should YADAVA COLLEGE MADURAI-14 improve its monitoring and reporting of energy usage and provide information to campus users. In order to do this the College must install meters for campus buildings.



Waste

Waste Biodegradable waste = 55 kg/day

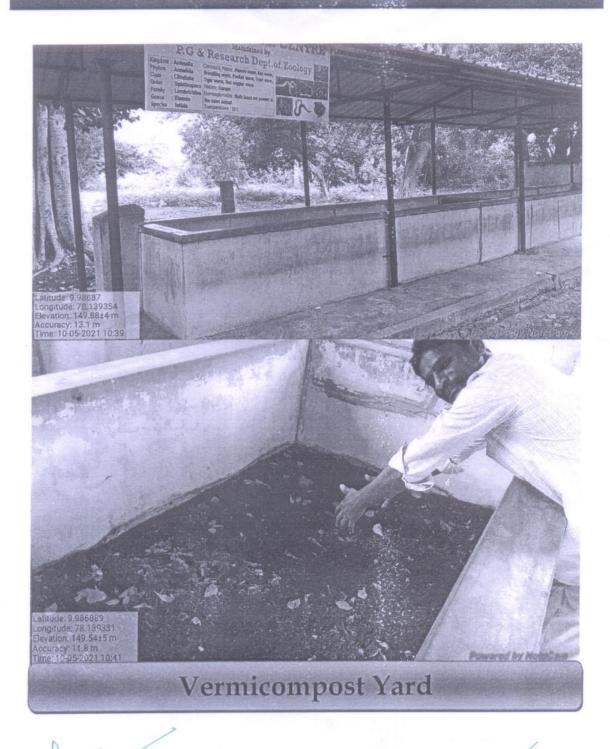
Non-biodegradable waste = 1 kg/day

A vermicomposting yard is highly essential for the treatment of bio degradable waste generated from the canteen, hostel, office, herbal garden and from the college campus cleaning operations. Hazardous waste generated from the college can be collected properly and may be handed over to the local self-governments treatment yards. Bottles, plastics, cans, broken glass wares, tins etc., may be recycled or sold out.

The College has missed few major recycling opportunities, with the exception of food waste from the dining halls. There should be proper sign boards displayed to tell students where to go for the disposal of other recyclables, plastics and hazardous wastes. There should be in place a policy for the handling and disposal of hazardous materials. The college should have in place plans for dealing with hazardous wastes in academic departments (art, chemistry, etc.) as well as the maintenance activities (paints, etc.). The college should ensure that the hazardous materials are disposed of properly. Chemistry department may change their experiments to green chemistry.

Existing waste management methods in the campus

- ➤ Green (biodegradable), Yellow (plastic) and red (e-waste) coloured bins are placed in the class rooms for the waste segregation
- ➤ Re use of plastic carry bags
- > Training in bag making from polyester, and cotton materials for nature club members Incinerator is used for napkin burning
- ➤ Waste segregation is done regularly



IQAC Coordinator

Dr.M.NARAYANAN Co ordinator - IQAC Yadava College Madurai-14. Prof. M. SEKAR, M.Sc., M.Phil.,
PRINCIPAL IN Principal
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MADURAI-14. 29