

GREEN AUDIT REPORT

2021 - 2022



Kongunadu Arts and Science College (Autonomous)

Re-accredited by NAAC with 'A⁺' Grade (4th cycle)

College of Excellence (UGC)

Coimbatore – 641 029, Tamil Nadu

GREEN AUDIT REPORT

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Kongunadu Arts and Science College (KASC) is one of the oldest colleges in Coimbatore, the western part of Tamil Nadu where agriculture and industrial developments are very progressive in Tamil Nadu. In addition to the best education for rural students, the college provides the best research opportunities and provision for extension activities for the interest of the common public. More than 50% of the students are mainly female gender almost in all subjects. The college is situated at the foothills of the Western Ghats at an altitude of 400 meters MSL. It indicates that it is very accessible to the vegetation and other landscapes of the Western Ghats, particularly the Nilgiris. The college administration is having a keen interest in maintaining a green campus, an eco-friendly approach towards getting sustainable ecosystem service. “Green auditing” is practiced every year in order to improve environmental protection. The Department of Botany of KASC has been doing a green auditing process since 2014 – 2015. It includes auditing of the flora and fauna, plastic free zone, green cover, solar energy, and usage of LED lights.

Flora

The list of trees, shrubs, climbers and herbs available in the year 2021 - 2022 is given below.

S. No.	Scientific Name	Family
1.	<i>Abutilon indicum</i>	Malvaceae
2.	<i>Acacia nilotica</i>	Mimosaceae
3.	<i>Acalypha indica</i>	Euphorbiaceae

4.	<i>Acanthospermum hispidum</i>	Asteraceae
5.	<i>Achyranthes aspera</i>	Amaranthaceae
6.	<i>Aegle marmelos</i>	Rutaceae
7.	<i>Aerva lanata</i>	Amaranthaceae
8.	<i>Ageratum conyzoides</i>	Asteraceae
9.	<i>Allamanda cathartica</i>	Apocynaceae
10.	<i>Albizia amara</i>	Mimosaceae
11.	<i>Aloe vera</i>	Liliaceae
12.	<i>Alternanthera pungens</i>	Amaranthaceae
13.	<i>Alternanthera sessilis</i>	Amaranthaceae
14.	<i>Alysicarpus monilifer</i>	Fabaceae
15.	<i>Alysicarpus rugosus</i>	Fabaceae
16.	<i>Amaranthus spinosus</i>	Amaranthaceae
17.	<i>Andrographis paniculata</i>	Acanthaceae
18.	<i>Anthurium andraeanum</i>	Araceae
19.	<i>Argemone mexicana</i>	Papaveraceae
20.	<i>Asystasia gangetica</i>	Acanthaceae
21.	<i>Azadirachta indica</i>	Meliaceae
22.	<i>Bauhinia malabarica</i>	Caesalpinaceae
23.	<i>Blepharis repens</i>	Acanthaceae
24.	<i>Boerhavia diffusa</i>	Nyctaginaceae
25.	<i>Boerhavia erecta</i>	Nyctaginaceae

26.	<i>Bougainvillea glabra</i>	Nyctaginaceae
27.	<i>Barleria cuspidata</i>	Acanthaceae
28.	<i>Brachiaria ramosa</i>	Poaceae
29.	<i>Brachiaria mutica</i>	Poaceae
30.	<i>Callistemon lanceolatus</i>	Myrtaceae
31.	<i>Calotropis gigantea</i>	Asclepiadaceae
32.	<i>Cardiospermum halicacabum</i>	Sapindaceae
33.	<i>Caryota urens</i>	Arecaceae
34.	<i>Cassia auriculata</i>	Caesalpiniaceae
35.	<i>Cassia fistula</i>	Caesalpiniaceae
36.	<i>Cassia siamea</i>	Caesalpiniaceae
37.	<i>Catharanthus roseus</i>	Apocynaceae
38.	<i>Chloris barbata</i>	Poaceae
39.	<i>Cleome pentaphylla</i>	Cleomaceae
40.	<i>Cleome viscosa</i>	Cleomaceae
41.	<i>Clitoria juncea</i>	Fabaceae
42.	<i>Clitoria ternatea</i>	Fabaceae
43.	<i>Coccinia indica</i>	Cucurbitaceae
44.	<i>Coleus aromaticus</i>	Lamiaceae
45.	<i>Commelina benghalensis</i>	Commelinaceae
46.	<i>Corchorus tridens</i>	Tiliaceae
47.	<i>Corchorus olitorius</i>	Tiliaceae

48.	<i>Cissus quadrangularis</i>	Vitaceae
49.	<i>Crinum asiaticum</i>	Amaryllidaceae
50.	<i>Croton bonplandianum</i>	Euphorbiaceae
51.	<i>Cuscuta chinensis</i>	Convolvulaceae
52.	<i>Cynodon dactylon</i>	Poaceae
53.	<i>Cyperus iria</i>	Cyperaceae
54.	<i>Cyperus rotundus</i>	Cyperaceae
55.	<i>Dactyloctenium</i> sp.	Poaceae
56.	<i>Datura metel</i>	Solanaceae
57.	<i>Delonix regia</i>	Caesalpinaceae
58.	<i>Digera arvensis</i>	Amaranthaceae
59.	<i>Digitaria longiflora</i>	Poaceae
60.	<i>Eragrostis riparia</i>	Poaceae
61.	<i>Emilia sonchifolia</i>	Asteraceae
62.	<i>Eucalyptus tereticornis</i>	Myrtaceae
63.	<i>Eupatorium odoratum</i>	Asteraceae
64.	<i>Euphorbia heterophylla</i>	Euphorbiaceae
65.	<i>Euphorbia microphylla</i>	Euphorbiaceae
66.	<i>Euphorbia hirta</i>	Euphorbiaceae
67.	<i>Evolvulus alsinoides</i>	Convolvulaceae
68.	<i>Ficus religiosa</i>	Moraceae
69.	<i>Gisekia pharnaceoides</i>	Aizoaceae

70.	<i>Gloriosa superba</i>	Liliaceae
71.	<i>Gomphrena decumbens</i>	Amaranthaceae
72.	<i>Gymnema sylvestre</i>	Asclepiadaceae
73.	<i>Heliotropium indicum</i>	Boraginaceae
74.	<i>Hibiscus micranthus</i>	Malvaceae
75.	<i>Hibiscus ovalifolius</i>	Malvaceae
76.	<i>Ichnocarpus frutescens</i>	Apocynaceae
77.	<i>Imperata cylindrica</i>	Poaceae
78.	<i>Indigofera enneaphylla</i>	Fabaceae
79.	<i>Indigofera viscosa</i>	Fabaceae
80.	<i>Ipomoea obscura</i>	Convolvulaceae
81.	<i>Ipomoea staphylina</i>	Convolvulaceae
82.	<i>Ixora coccinea</i>	Rubiaceae
83.	<i>Justicia adhatoda</i>	Acanthaceae
84.	<i>Justicia tranquebariensis</i>	Acanthaceae
85.	<i>Kyllinga triceps</i>	Cyperaceae
86.	<i>Lantana camara</i>	Verbenaceae
87.	<i>Leucas aspera</i>	Lamiaceae
88.	<i>Malvastrum coromandelianum</i>	Malvaceae
89.	<i>Michelia champaca</i>	Magnoliaceae
90.	<i>Millingtonia hortensis</i>	Bignoniaceae
91.	<i>Mimosa pudica</i>	Mimosaceae

92.	<i>Mimusops elengi</i>	Sapotaceae
93.	<i>Morinda tinctoria</i>	Rubiaceae
94.	<i>Mukia maderaspatana</i>	Cucurbitaceae
95.	<i>Murdannia dimorpha</i>	Commelinaceae
96.	<i>Nerium indicum</i>	Apocynaceae
97.	<i>Ocimum basilicum</i>	Lamiaceae
98.	<i>Ocimum sanctum</i>	Lamiaceae
99.	<i>Oldenlandia umbellata</i>	Rubiaceae
100.	<i>Oxalis corniculata</i>	Oxalidaceae
101.	<i>Oxalis latifolia</i>	Oxalidaceae
102.	<i>Polyalthia longifolia</i>	Annonaceae
103.	<i>Parthenium hysterophorus</i>	Asteraceae
104.	<i>Passiflora foetida</i>	Passifloraceae
105.	<i>Pavonia zeylanica</i>	Malvaceae
106.	<i>Peltophorum ferrugineum</i>	Caesalpinaceae
107.	<i>Pergularia daemia</i>	Asclepidaceae
108.	<i>Peristrophe bicalyculata</i>	Acanthaceae
109.	<i>Perotis indica</i>	Poaceae
110.	<i>Phyllanthus amarus</i>	Euphorbiaceae
111.	<i>Phyllanthus maderaspatensis</i>	Euphorbiaceae
112.	<i>Physalis minima</i>	Solanaceae
113.	<i>Plumeria rubra</i>	Apocynaceae

114.	<i>Plumeria alba</i>	Apocynaceae
115.	<i>Polygala bulbothrix</i>	Polygalaceae
116.	<i>Pongamia pinnata</i>	Fabaceae
117.	<i>Portulaca pilosa</i>	Portulacaceae
118.	<i>Prosopis spicigera</i>	Mimosaceae
119.	<i>Prosopis glandulosa</i>	Mimosaceae
120.	<i>Quisqualis indica</i>	Mimosaceae
121.	<i>Rauvolfia tetraphylla</i>	Apocynaceae
122.	<i>Rhynchosia minima</i>	Fabaceae
123.	<i>Ruellia tuberosa</i>	Acanthaceae
124.	<i>Samanea saman</i>	Mimosaceae
125.	<i>Sida acuta</i>	Malvaceae
126.	<i>Sida cordifolia</i>	Malvaceae
127.	<i>Solanum nigrum</i>	Solanaceae
128.	<i>Solanum trilobatum</i>	Solanaceae
129.	<i>Spathodea campanulata</i>	Bignoniaceae
130.	<i>Spermacoce hispida</i>	Rubiaceae
131.	<i>Sporobolus coromundelianus</i>	Poaceae
132.	<i>Swietenia macrophylla</i>	Meliaceae
133.	<i>Tabernaemontana divaricata</i>	Apocynaceae
134.	<i>Talinum portulacifolium</i>	Portulacaceae
135.	<i>Tecoma stans</i>	Bignoniaceae

136.	<i>Tephrosia procumbens</i>	Fabaceae
137.	<i>Tephrosia purpurea</i>	Fabaceae
138.	<i>Thespesia populnea</i>	Malvaceae
139.	<i>Thunbergia grandiflora</i>	Acanthaceae
140.	<i>Thunbergia mysorensis</i>	Acanthaceae
141.	<i>Tinospora cordifolia</i>	Menispermaceae
142.	<i>Trianthema portulacastrum</i>	Aizoaceae
143.	<i>Tribulus terrestris</i>	Zygophyllaceae
144.	<i>Trichodesma indicum</i>	Boraginaceae
145.	<i>Tridax procumbens</i>	Asteraceae
146.	<i>Vernonia cinerea</i>	Asteraceae
147.	<i>Vitex negundo</i>	Verbenaceae
148.	<i>Waltheria indica</i>	Sterculiaceae
149.	<i>Wedelia chinensis</i>	Asteraceae

Fauna

Since the campus is having a high degree of green cover mainly due to trees, many number of avian fauna inhabit the institution. In addition, reptiles and rodents are also common on campus. Grains and water are also provided to the birds and other wild species by the students of biodiversity conservation interest. Some of the common fauna available on the college campus are given below.

List of the Avifauna identified in the college campus

S. No.	Scientific Name	Common Name	Family
1.	<i>Bubulcus ibis</i>	Cattle Egret	Ardeidae
2.	<i>Ardeola grayii</i>	Indian Pond-Heron	
3.	<i>Accipiter badius</i>	Shikra	Accipitridae
4.	<i>Francolinus pondicerianus</i>	Grey Francolin	Phasianidae
5.	<i>Pavo cristatus</i>	Indian Peafowl	
6.	<i>Amaurornis phoenicurus</i>	White-breasted Waterhen	Rallidae
7.	<i>Vanellus indicus</i>	Red-wattled Lapwing	Charadriidae
8.	<i>Columba livia</i>	Blue Rock Pigeon	Columbidae
9.	<i>Streptopelia senegalensis</i>	Little Brown Dove	
10.	<i>Psittacula krameri</i>	Rose-ringed Parakeet	Psittacidae
11.	<i>Clamator jacobinus</i>	Pied Crested Cuckoo	Cuculidae
12.	<i>Eudynamys scolopacea</i>	Asian Koel	
13.	<i>Centropus sinensis</i>	Greater Coucal	
14.	<i>Tyto alba</i>	Barn Owl	Tytonidae
15.	<i>Athene brama</i>	Spotted Owlet	Strigidae
16.	<i>Apus affinis</i>	House Swift	Apodidae
17.	<i>Halcyon smyrnensis</i>	White-throated Kingfisher	Alcedinidae
18.	<i>Merops orientalis</i>	Green Bee-eater	Meropidae
19.	<i>Coracias benghalensis</i>	Indian Roller	Coraciidae
20.	<i>Megalaima haemacephala</i>	Coppersmith Barbet	Capitonidae
21.	<i>Dinopium benghalense</i>	Black-rumped Flameback	Picidae
22.	<i>Hirundo rustica</i>	Barn Swallow	Hirundinidae
23.	<i>Hirundo daurica</i>	Red-rumped	

		Swallow	
24.	<i>Motacilla maderaspatensis</i>	White-browed Wagtail	Motacillidae
25.	<i>Pycnonotus cafer</i>	Red-vented Bulbul	Pycnonotidae
26.	<i>Copsychus saularis</i>	Oriental Magpie-Robin	Turdinae
27.	<i>Saxicoloides fulicata</i>	Indian Robin	
28.	<i>Saxicola caprata</i>	Pied Bushchat	
29.	<i>Turdoides striatus</i>	Jungle Babbler	Timaliinae
30.	<i>Prinia inornata</i>	Plain Prinia	Sylviinae
31.	<i>Dicaeum erythrorhynchos</i>	Pale-billed Flowerpecker	Dicaeidae
32.	<i>Nectarinia asiatica</i>	Purple Sunbird	Nectariniidae
33.	<i>Lonchura malabarica</i>	Indian Silverbill	Estrildidae
34.	<i>Passer domesticus</i>	House Sparrow	Passerinae
35.	<i>Acridotheres tristis</i>	Common Myna	Sturnidae
36.	<i>Oriolus oriolus</i>	Eurasian Golden Oriole	Oriolidae
37.	<i>Dicrurus macrocercus</i>	Black Drongo	Dicruridae
38.	<i>Artamus fuscus</i>	Ashy Woodswallow	Artamidae
39.	<i>Dendrocitta vagabunda</i>	Rufous Treepie	Corvidae
40.	<i>Corvus splendens</i>	House Crow	
41.	<i>Corvus macrorhynchos</i>	Large-billed Crow	

List of butterflies identified in the college campus

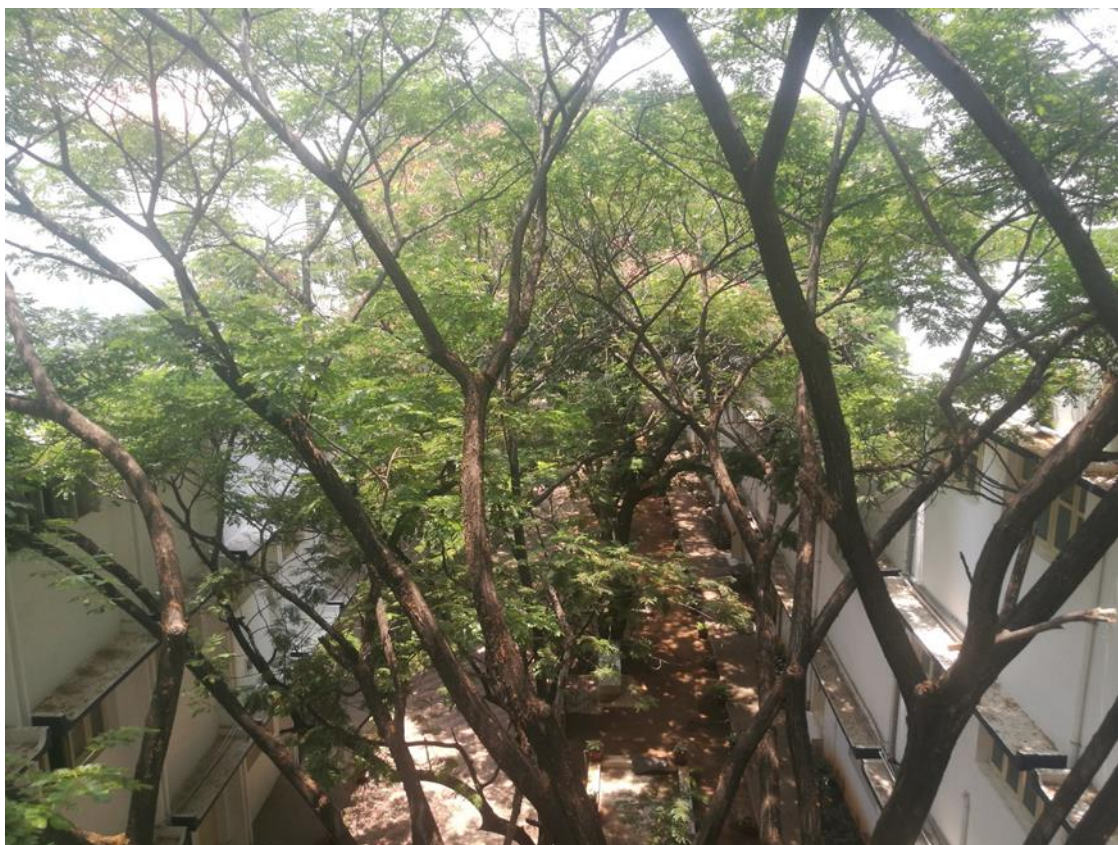
S. No.	Scientific Name	Common Name	Family
1.	<i>Pachliopta aristolochiae</i>	Common Rose	Papilionidae
2.	<i>Pachliopta hector</i>	Crimson Rose	
3.	<i>Papilio polytes</i>	Common Mormon	
4.	<i>Papilio polymnestor</i>	Blue Mormon	
5.	<i>Papilio demoleus</i>	Lime Butterfly	
6.	<i>Eurema hecabe</i>	Common Grass Yellow	Pieridae
7.	<i>Catopsilia pomona</i>	Common Emigrant	
8.	<i>Danaus chrysippus</i>	Plain Tiger	Nymphalidae
9.	<i>Euploea core</i>	Common Crow	
10.	<i>Melanitis leda</i>	Common Evening Brown	
11.	<i>Neptis hylas</i>	Common Sailor	
12.	<i>Ariadne merione</i>	Common Castor	
13.	<i>Junonia orithya</i>	Blue Pansy	
14.	<i>Junonia iphita</i>	Chocolate Pansy	
15.	<i>Hypolimnys misippus</i>	Danaid Eggfly	
16.	<i>Jamides celeno</i>	Common Cerulean	Lycaenidae
17.	<i>Zizula hylax</i>	Tiny Grass Blue	
18.	<i>Euchrysops cnejus</i>	Gram Blue	
19.	<i>Luthrodes pandava</i>	Plains Cupid	
20.	<i>Azanus jesous</i>	African Babul Blue	
21.	<i>Udaspes folus</i>	Grass Demon	Hesperiidae
22.	<i>Matapa aria</i>	Common Red Eye	
23.	<i>Parnara sp.</i>		

List of spider species identified in the college campus

S. No.	Scientific Name	Common Name	Family
1.	<i>Argiope pulchella</i>	Garden cross spider	Araneidae
2.	<i>Argiope</i> sp.	Signature spider	
3.	<i>Cyrtophora cicatrosa</i>	Garden tent spider	
4.	<i>Gasteracantha geminata</i>	Garden spiny spider	
5.	<i>Neoscona mokerjei</i>	Common garden orb-weaver	
6.	<i>Hersilia savignyi</i>	Two- tailed spider	Hersiliidae
7.	<i>Lycosa</i> sp.	Soil lycosid spider	Lycosidae
8.	<i>Oxyopes lineatipes</i>	Lined lynx spider	Oxyopidae
9.	<i>Oxyopes shweta</i>	White lynx spider	
10.	<i>Oxyopes sunandae</i>	Orange lynx spider	
11.	<i>Crossopriza lyoni</i>	Box spider	Pholicidae
12.	<i>Pholcus phalangioides</i>	Long bodied cellar spider	Salticidae
13.	<i>Hyllus semicupreus</i>	Heavy-bodied jumper	
14.	<i>Plexippus petersi</i>	Small zebra jumper	
15.	<i>Plexippus</i> sp.	Jumping spider	
16.	<i>Telamonia dimidiata</i>	Two-striped jumper	
17.	<i>Heteropoda venatoria</i>	Common house spider	Sparassidae
18.	<i>Argyrodes</i> sp.	Dew drop spider	Theridiidae
19.	<i>Theridion manjithar</i>	Common comb footed spider	

Green cover

It is assessed that tentatively 40% of the geographical area of the campus was occupied by the green cover of the tree species. It is well beyond the standard prescribed by the Indian forest policy, 33%.



The green cover in the college campus

Rain water harvesting

All over the campus at eight different places, rainwater harvesting units each with the size of 12' x 8' x 10' for rooftop water harvesting. As per the information of the college administration, it is known that for the students and staff members and laboratory usage, the bore well situated in the college provided the complete supply of water. No amount of water was purchased for this purpose. However, before the construction of the rainwater harvest unit to meet the demand, an average of 20,000 liters of water was purchased every day. Apart from the rainwater harvest unit, the surface water during rainy days was permitted to percolate in the soil to augment groundwater to the maximum extent. This is mainly due to the non-sealing of the earth's surface by the tiles, cement concretes, etc. wherever it is possible. The average annual rainwater harvesting during the year 2021-2022 was 28,12,527 L.



The rain water harvesting unit

Solar Energy

Solar energy production is the approach toward green energy. Thus it reduces pollution hazardous in general and the college environment in particular. Solar energy can be used for different purposes like water heating, laboratory uses, lighting bulbs, etc. A solar panel with a capacity of 150 KW was installed within the campus in January 2017. The power production for the institution use was about 500 units per day during the summer season.

Total energy consumption by solar panels in 2021 - 2022

Solar panel	Units
100 KW	78,690
50 KW	24,900
Total	1,03,590

Inter and Intranet communications

An intranet facility was created for communicating the circulars and other information to staff members, scholars, and students. This was reducing the stationery usage like papers considerably within the campus.

Light-emitting diode (LED) lights

LED lights can reduce energy usage by about 80% as compared with fluorescent and incandescent lights. Hence, tube lights and other CFL bulbs have been replaced with LEDs on our college campus. So far, a total LED lighting load of 20,190 KW has been used (like street lights, classroom lights and focus lights).



Solar roof panels in the college campus

Installation of LED lights

LED lights	Quantity (No.)	Watt	Total Watt
Street lights	31	40	1,240
Class room and Hostels	935	20	18,700
Focus	5	50	250
Total lighting load			20,190

Vermicomposting

Vermicomposting is the eco-friendliest recycling process to reduce organic waste. This recycling process converts organic debris into high-quality compost and makes the nutrients easily available to the plants. Vermicomposting is essentially the decomposition of organic materials by earthworms. The solid biodegradable waste generated on our college campus has been used for the vermicomposting purpose. The step requires about 45 days for completing vermicomposting. At present, our college management has installed two vermicomposting units and the Department of Zoology has been maintaining these units. The final product is used for gardening purposes within the college campus.



The vermicomposting unit in the college campus

Greenhouse

Greenhouse is designed for the protection of tender plants against excessive cold or heat. Recently, our college constructed a greenhouse (4' x 5') for protecting some important ornamental and medicinal plants from the heat. Botany, Biochemistry and Biotechnology departments have been using the greenhouse facility for research and nursery purposes.



The greenhouse facility in our college campus

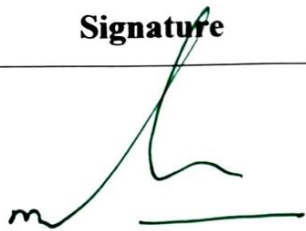
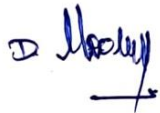
E-waste management

Our college signed an MoU with Green Era Recyclers, Coimbatore for recycling E-waste. During 2021 – 2022, about 500 kg of E-waste was collected from our college. This E-waste will be recycled and disposed of a scientific and environmentally friendly manner.

Suggestions and Recommendations

1. Add more numbers of plants to the medicinal garden and develop a nursery with native plants.
2. Maintenance of rainwater harvesting unit by adopting suitable methods.
3. Utilize wastewater from laboratories and hostels for gardens.
4. Conduct an awareness program on reducing, reusing, and recycling education on campus.

Signature of the committee members

S. No.	Committee members	Signature
1.	Dr. M. Lekeshmanaswamy Principal, Kongunadu Arts and Science College, Coimbatore – 641029, Tamil Nadu	
2.	Dr. K. Thenmozhi Assistant Professor and Head Department of Botany, Kongunadu Arts and Science College, Coimbatore – 641029, Tamil Nadu	
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4.	Dr. D. Moorthy Assistant Professor, Department of Botany, Kongunadu Arts and Science College, Coimbatore – 641029, Tamil Nadu	
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