

# **REPORT OF THE ENVIRONMENTAL/GREEN AUDIT NSS COLLEGE, OTTAPALAM 2017**



**Internal Quality Assurance Cell  
July 2017**

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## PREFACE

Self-inquiry is a natural and necessary outgrowth of a quality education, and the same applies to an educational institution. Concern about environmental degradation and realization of values of environment are logical consequences of scholarly research, teaching and learning process that takes place in the educational institutions every day. It is, thus, imperative that the institution evaluates its own contributions toward a sustainable future.

With the aim to improve environmental quality of the campus, our college has conducted a preliminary self-inquiry or 'audit' on environmental quality with the following objectives:

- (i) To understand the current practices of sustainability with regard to the use of water and energy, generation of wastes, purchase of goods, transportation, etc;
- (ii) To promote environmental awareness through participatory auditing process; and
- (iii) To develop a report documenting preliminary data of good practices and provide recommendations towards improving environmental quality for future.

The green audit was conducted and this report is compiled by a committee constituted by IQAC. The audit was carried out following the model of University of Kerala (2015). The questionnaire was developed through discussions by the members of the committee. The major part of the data was compiled with the help of student volunteers of Albatross Nature Club, which the committee analyzed. Since the audit is a preliminary and very basic effort, the part which involved measurement of quality was not completely covered. The methodology adopted include: preparation and filling up of of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations.

The data can serve as a baseline for further action in the campus greening. Existing data will allow the institution to compare its programs and operations with those of peer

institutions, identify areas in need of improvement, and prioritize the implementation of future projects. The resulting compilation can serve as an official reference source for any research, course projects, or new initiatives pertaining to the ecological and physical functions of the campus.

**Manju, B.L., IQAC Co-ordinator**

**Preehti, N. Assistant Professor, Department of Zoology**



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**Dr. A. Biju Kumar**  
*Dean, Faculty of Science*  
*Professor and Head*

DFS/Green Audit/2017-18/1

2 November 2017

To  
**The IQAC Cell**  
NSS College  
Ottapalam

Sir/Madam:

Thank you for sending me the copy of the Environmental/Green Audit conducted by your college. Happy to note that you have followed the methodology adopted by University of Kerala. I could not see other examples of colleges conducting such a detailed environmental/green audit, and I congratulate the team for this initiative.

As a first attempt it forms a good report. However, may I suggest that you can slowly build up a strong data base on the faunal and floral diversity of the campus, through linking the nature club and NSS units. I also suggest to explore possibility to use of all barren land in the campus for afforestation using indigenous fruit and flowering plants. Further, waste management (including the chemicals from the lab) and energy audit can be clubbed with this auditing next year.

With Best wishes

Sincerely,

Dr A Biju Kumar  
Dean, Faculty of Science



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## **1. INTRODUCTION**

*Green auditing* can be defined as the systematic identification, quantification, recording, reporting & analysis of components of ecological diversity & expressing the same in financial or social terms. “*Green Auditing*”, an umbrella term, is also known as “*Environmental Auditing*”. They also serve as a means to identify opportunities to save money, enhance work quality, improve employee health and safety and reduce liabilities.

### **Institution**

NSS College Ottapalam was established in 1961. The college has been pioneer in providing quality education to the rural students in Ottapalam area. The college main campus is spread over 30 acres, of which 45 percent is covered by lush green vegetation including indigenous fruit trees and medicinal plants that supports a good faunal diversity. The institution conducted an internal green audit in the academic year 2016-17. The college strives to maintain an ecofriendly campus. To accomplish the objectives, the college maintains:

- Green ecofriendly building.
- Through the active functioning of Nature club and Bhoomithrasena club, the campus promotes think and follow green. The college undertakes various beautification activities through N.S.S.
- Campus strictly follows water conservation and take measures to prevent water wastage.
- To be energy efficient, campus has completely replaced incandescent bulbs with CFL and LED tubelights.
- Small generators are substituted with A 75 KV generators to save diesel.

- Campus maintains Carbon dioxide neutrality in the campus by maintaining thick greenery.
- Global warming, biodiversity and pollution incorporated in the curriculum

## **2. OBJECTIVES**

The main objectives of conducting green auditing are :

- to ensure that the environmental performance is in compliance with applicable laws and regulations,
- to identify potential liabilities,
- to identify opportunities to save energy; to identify opportunities to reduce costs or increase revenue.
- to implement 'Go green' – Making the campus green
- to see that proper steps have been taken to control or to prevent adverse effects like pollution.
- to reduce waste and to dispose waste in an eco-friendly manner.

## **3. METHODOLOGY**

The present internal green audit was carried out on preliminary basis by the committee constituted by IQAC and the student volunteers of Albatross Nature Club. The audit was conducted with suggestions and feedback from Dr. Sushama, S., Associate Professor, Department of Zoology, NSS College Ottapalam. The data required were collected by various methods, namely,

- interviews with Head of the various departments,
- surveys and visits to classrooms and departments,
- documentary review of floral and faunal registers maintained in the departments of Botany and Zoology respectively.



- The main parameters in green auditing were :
  - Biodiversity audit and Environmental quality audit
  - Waste disposal audit
  - Energy audit
  - Water audit

#### **4.1. BIODIVERSITY AUDIT & ENVIRONMENTAL QUALITY AUDIT**

- Analyzes the air quality, noise level and programs undertaken for plantation

##### **(a) OBSERVATIONS**

- The floral and faunal diversity has been identified and documented by the Department of Botany and Zoology respectively. There are more than 431 plant species were audited. The faunal diversity, especially birds, butterflies, odonates, orthopterans, spiders and others are regularly monitored and documented systematically.
- Maintaining a Green Belt to reduce the pollution level.
- Table showing the local and scientific names of the floral diversity.
  - The Internal green audit was conducted as a pilot study, with suggestions to increase greenery in campus.
  - Efforts have been taken by the college to create environment consciousness amongst students. In this regard, extensive plantation programs and awareness campaign are organized by NSS, Albatross Nature Club and Bhoomitrasena Club.

- Plantation is encouraged by the Principal and faculties of all departments to increase greenery and reduce carbon emission effects. Renovation of the garden at the entrance was done with committed involvement of NSS volunteers.
- Extension programs also organized to create environment awareness and conservation of biodiversity amongst the students and public. In this regard, extension programs were organized at the college campus and Sreekrishnapuram Grama Panchayat.
- Celebrates ‘Environment Day’ every year on June and plant trees on this day to make the campus more Green.
- Majority of the students in the campus rely on public transport, that indicates lesser carbon foot print of the student community.
- The different sources of carbon dioxide emitted to our college are:
  - 1.Vehicles (Appendix )
  - 2.Refrigerators – 3 nos.
  - 3.Burning – Burning of dry leaves, burning in different laboratories
  4. Napkin disposal unit – Placed in the ladies’ room.

### **(b) RECOMMENDATIONS**

- The institution need to take steps towards maintaining medicinal garden and a green house.
- Can take up environmental awareness programs as a part of course work in various curricular areas and independent research projects.

- The institution must ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings.
- The barren land in the campus can be used for afforestation using indigenous fruit and flowering plants
- The green auditing can be made a part of environment education curriculum

## **4.2. WASTE DISPOSAL AUDIT**

(Waste generation and management)

### **(a) OBSERVATIONS**

- Addresses waste production and disposal of different wastes like paper, food, plastic, biodegradable, glass, dust etc. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair, and reuse. Solid waste generation and management is a burning issue. Unscientific handling of solid waste can create threats to everyone. The survey focused on volume, type and current management practice of solid waste generated in the campus.
  - The study observed that the total solid waste collected in the campus was approximately 21Kg/day.
  - Waste generation from tree droppings and lawn management is a major solid waste generated in the campus.
  - Single sided used papers are reused for writing and printing in all the departments.
  - Very less plastic waste is generated by some departments, but it is neither categorized at point source nor sent for recycling.

- Few glass bottles are reused in the laboratories. There has been a regular disposal of wastes which were collected at regular basis by municipality authorities.
- Use of dust bins in every corridors and classrooms to collect wastes is followed in the campus.
- Land filling is the general waste management strategy adopted by the institution and there is no management plan for managing inorganic waste, especially plastics.
- Careless discarding of solid wastes is a common site in many segments of the campus.
- Many departments avoid flex banners during the seminars and conferences.
- The Albatross Nature Club strictly use steel glasses and reusable plates for functions and academic programmes.

### **(b) RECOMMENDATIONS**

- There is need to initiate steps to scientifically assess the prevailing waste disposal policies and develop the best way to combat the problem.
- Need to strongly restrict the use of plastics in the campus.
- There is scope for establishing vermicompost in the campus, as to handle the wastes from canteen and hostel mess.
- There should be measures to segregate wastes at source by providing separate dustbins for Bio-degradable and Plastic wastes.
- Biogas plants need to be established for effectively managing organic wastes produced in canteen and hostels.

- The campus should be declared free from plastic carry bags and this should be put into practice strictly.

### **4.3. ENERGY AUDIT**

#### **(a) OBSERVATIONS**

- Addresses energy consumption, energy sources, energy monitoring, lighting, appliance, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment.
- Energy conservation and methods to reduce its consumption and associated pollution.
- Energy consuming methods adopted and assessing these methods for usage of energy in conservative manner.
- The study observed that the energy source utilized by all the departments and common facility centre is electricity only. Total energy consumption is determined as 32506 KW/Year by major energy consuming equipments. All the departments and common facility centres are equipped mainly with tubelights. The survey showed the usage of 69 CFLs (Capacity). Equipments like Computers are used with power saving mode. In science departments namely Botany, Chemistry, Computer Science, Physics and Zoology electricity was shut down after occupancy time and is one of green practices for energy conservation.
- Each department possess computers, printers, fans, plug points, tube lights, bulbs, etc. In addition to these equipment, our college also has various scientific equipments in Botany, Chemistry, Physics and Zoology laboratories.

## **(b) RECOMMENDATIONS**

- There is a need for installing photovoltaic solar panels as the institution has a total roof area of about 8000 m<sup>2</sup>. This can also address the frequent failures in the area and thus protect the equipments used in various laboratories, library and the college office.
- Need to take measures to install of LED lamps as an energy efficient approach, especially in those places where lighting throughout the day is needed must be done for efficient energy use.
- Library lighting is very poor. Measures need to be taken to enhance the lighting facility in the library.

### **4.4. WATER AUDIT**

(Water and waste water management)

#### **(a) OBSERVATIONS**

- Addresses water consumption, water sources, appliances and fixtures. A water audit is an on - site survey and assessment to determine the water use and hence improving the efficiency of its use.
- The facilities of raw water intake and determining the facilities of water treatment.
- Water harvesting – Rain water harvesting for storage of water and using at the time of scarcity.
  - The study observed that three wells are the major sources of water. Water is used for drinking purpose, canteen, toilets, laboratory and gardening. During the survey, loss of water was observed by leakage of taps. The data collected from all the departments is examined and verified. On an average the total use of water in the college is 2,000 L /day. Three rain water harvesting units have been constructed in the campus for storing water. But proper

maintenance is not carried out. Gardens are watered by using bucket and mug. This is one of the unique steps towards greening practices.

### **(b) RECOMMENDATIONS**

- Relevant methods must be adopted and implemented to balance the demand and supply of water.
  - There is need for monitoring and controlling leakages. In campus, small scale/medium scale/ large scale reuse and recycle of water system is necessary.
  - The rain water harvesting systems must be maintained regularly, especially before the commencement of monsoons.

## **5. CONCLUSIONS**

Considering the fact that the institution is predominantly an undergraduate college, there is significant environmental research both by faculty and students. The environmental awareness initiatives are substantial.

The environmental awareness programmes initiated by the administration shows how the campus is going green.

Few recommendations are added for the management of the campus economically using ecofriendly and scientific techniques. This may lead to the prosperous future in context of Green Campus & thus sustainable environment and community development.

- i. External environmental auditing need to be conducted by the College regularly with the support of external auditing agencies.
- ii. Rainwater harvesting facilities established need to be maintained regularly for effective use.
- iii. Specific waste management plans need to be adopted to manage solid waste in the campus, with the assistance of State Suchithwa Mission and use of plastic carry bags, thermocol cups/plates and flex boards should be strictly banned inside the campus.
- iv. For managing organic wastes, biogas plants may be commissioned at the hostels, and canteens.
- v. The wastes generated can be used for promoting organic farming activities within the campus and the products can be used in hostels and canteens, with a plan to ensure the availability of organic food in the canteen and hostels for future. The college NSS units have suggested as their future plan to start organic farming in the campus.
- vi. The lighting within the campus may be run with solar panels and the replacement of existing lights should be done with LED lamps. Energy auditing can be done with the help of Energy Management Centre (EMC).
- vii. More public toilets/e-toilets may be established in the campus and in hostels; separate toilets are required for differently abled students.



viii. Irrespective of the subjects, environmental education should be part of curriculum and for the post-graduate programmes at least one credit on environmental education or sustainable development as elective should be made compulsory. Alternatively one credit may be given to students participating in environmental conservation/awareness activities.

ix. Physico-chemical and biological studies of water need to be done to complete the audit. This can be done with the assistance of CWRDM, Kozhikode or IRTC, Mundur.

Appendix 1  
Campus Environment Snap Shots



## Appendix 2

### FAUNA REPORTED FROM THE COLLEGE CAMPUS

Sl.No.	Zoological Name	Local Name	Group
1	<i>Troides minos</i>	Southern Birdwing	Lepidoptera (Butterflies/ Moths)
2	<i>Pachliopta aristolochiae</i>	Common rose	
3	<i>Pachliopta hector</i>	Crimson rose	
4	<i>Papilio polytes</i>	Common mormon	
5	<i>Melanitis leda</i>	Common evening brown	
6	<i>Phalanta phalantha</i>	Common leopard	
7	<i>Neptis hylas</i>	Common sailer	
8	<i>Junonia lemonias</i>	Lemon pansy	
9	<i>Tirumala limniace</i>	Blue tiger	
10	<i>Euploea core</i>	Common Indian crow	
11	<i>Catopsila Pomona</i>	Common emigrant	
12	<i>Prioneris sita</i>	Painted sawtooth	
13	<i>Jamides celeno</i>	Common cerulean	
14	<i>Atractomorpha saussure</i>		
15	<i>Spathhosternum krauss</i>		
16	<i>Coptacra stal</i>		
17	<i>Dittopternis Saussure</i>		
18	<i>Phlaeobida bolivar</i>		
19	<i>Trilophidia stal</i>		
20	<i>Oxya audient – servile</i>		
21	<i>Acrida linnaeus</i>		
22	<i>Phlacoba stal</i>		
23	<i>Catantops stal</i>		
24	<i>Heiroglyphus krauss</i>		

25	<i>Passer domesticus</i>	House sparrow	Aves (Birds)
26	<i>Copsychus saularis</i>	Oriental Magpie robin	
27	<i>Amaurornis phoenicurus</i>	White breasted water hen	
28	<i>Centropus sinensis</i>	Crow pheasant	
29	<i>Acridotheres tristis</i>	Common myna	
30	<i>Haliastur indus</i>	Brahminy kite	
31	<i>Eudynamis scolopaceus</i>	Asian koel	
32	<i>Dicrurus macrocercus</i>	Black drongo	
33	<i>Psittacula krameri</i>	Rose-ringed parakeet	
34	<i>Pycnonotus cafer</i>	Red vented bulbul	
35	<i>Corvus splendens</i>	House crow	
36	<i>Oriolus chinensis</i>	Black naped oriole	
37	<i>Dinopium javanense</i>	Black rumped flameback	
38	<i>Corvus macrorhynchos</i>	Jungle crow	
39	<i>Megalaima viridis</i>	White cheeked barbet	
40	<i>Cypsiurus balasiensis</i>	Asian palm swift	
41	<i>Oriolus kundoo</i>	Indian Golden oriole	
42	<i>Pericrocotus flammeus</i>	Orange minivet	
43	<i>Orthotomus sutorius</i>	Tailor bird	
44	<i>Cinnyris lotenius</i>	Loten's sunbird	
45	<i>Geokichla citrine cyanota</i>	White throated ground thrush	
46	<i>Coracina javensis</i>	Large cuckooshrike	
47	<i>Vanellus cinereus</i>	Yellow wattled lapwing	
48	<i>Ocyrceros birostitis</i>	Indian grey hornbill	
49	<i>Phaenicophaeus viridirostris</i>	Blue faced Malkoha	
50	<i>Dicrurus paradiseus</i>	Racket tailed black drongo	
51	<i>Dendrocitta vagabunda</i>	Rufous treepie	
52	<i>Pavo cristatus</i>	Indian peafowl	

53	<i>Myrmicaria brunnea</i>		Formicidae (Ants)
54	<i>Lophomyrmex quadrispinosus</i>		
55	<i>Solenopsis germinate</i>		
56	<i>Technomyrmex bicolor</i>		
57	<i>Tetraoponera rufonigra</i>		
58	<i>Tetraoponera nigra</i>		
59	<i>Camponotus compressus</i>		
60	<i>Camponotus paria</i>		
61	<i>Camponotus invidus</i>		
62	<i>Polyrachis rupicapra</i>		
63	<i>Argiope anasuja</i>		Araneae (spiders)
64	<i>Argiope pulchella</i>		
65	<i>Cyrtarachne keralayensis</i>		
66	<i>Cryptophora citricola</i>		
67	<i>Cyrtophora bidenta</i>		
68	<i>Eriovixia laglaizei</i>		
69	<i>Gasteracantha geminata</i>		
70	<i>Neoscona molemensis</i>		
71	<i>Neoscona nautica</i>		
72	<i>Neoscona punctigera</i>		
73	<i>Cyrtarachne keralayensis</i>		
74	<i>Hersilia savignyi</i>		
75	<i>Hippasa agelenoides</i>		
76	<i>Pardosa sumatrana</i>		
77	<i>Cheiracanthium danieli</i>		
78	<i>Nephila pilipes</i>		
79	<i>Oxyopes javanus</i>		
80	<i>Oxyopes shweta</i>		

81	<i>Oxyopes sumandae</i>		
82	<i>Crossopriza lyoni</i>		
83	<i>Pisaura gitae</i>		
84	<i>Bavia kairali</i>		
85	<i>Epeus indicus</i>		
86	<i>Hasarius adansoni</i>		
87	<i>Hyllus semicupreus</i>		
88	<i>Menemerus bivittatus</i>		
89	<i>Plexippus petersi</i>		
90	<i>Plexippus paykulli</i>		
91	<i>Telamonia dimidiata</i>		
92	<i>Thiania bhamoensis</i>		
93	<i>Chilobrachys andersoni</i>		
94	<i>Scytodes fusca</i>		
95	<i>Heteropoda venatoria</i>		
96	<i>Heteropoda nilgirina</i>		
97	<i>Olios milleti</i>		
98	<i>Leucauge pondae</i>		
99	<i>Opadometa fastigata</i>		
100	<i>Achaearanea mundula</i>		
101	<i>Argyrodes gazedes</i>		
102	<i>Theridion manjithar</i>		
103	<i>Theridula augula</i>		
104	<i>Steatida albomaculata</i>		
105	<i>Thomisus projectus</i>		
106	<i>Miagrammopes extensus</i>		
107	<i>Chryso picturata</i>		

**Appendix 3**  
**FLORA REPORTED FROM THE COLLEGE CAMPUS**

Sl. No.	BOTANICAL NAME	LOCAL NAME	FAMILY
1	<i>Polyalthia longifolia</i>	Aranamaram	Annonaceae
2	<i>Annona squamosa</i>	Seethapazham	
3	<i>Annona reticulata</i>	Malamunthiri	
4	<i>Cyclea peltata</i>	Kattuvalli	Menispermaceae
5	<i>Tinospora cordifolia</i>	Chittamruth	
6	<i>Nymphaea stellata</i>	Aambal	Nymphaeaceae
7	<i>Cleome burmannii</i>	Kaattukadugu	Capparaceae
8	<i>Polygala bulbothrix</i>		Polygalaceae
9	<i>Sida acuta</i>	Kurunthotti	Malvaceae
10	<i>Sida cordifolia</i>		
11	<i>Sida rhombifolia</i>	Kurumthotti	
12	<i>Hibiscus mutabilis</i>	Changing rose	
13	<i>Hibiscus rosasinensis</i>	Chembarathi	
14	<i>Melochia corchorifolia</i>		
15	<i>Waltheria sp.</i>		Sterculiaceae
16	<i>Triumfetta rhomboidea</i>		Tiliaceae
17	<i>Corchorus aesuans</i>		
18	<i>Oxalis sp.</i>		Geraniaceae
19	<i>Biophytum sensitivum</i>	Mukkutti	
20	<i>Glycosmis pentaphylla</i>		Rutaceae
21	<i>Murraya koenigii</i>	Karivepu	
22	<i>Naregamia alata</i>		Meliaceae
23	<i>Azadirachta indica</i>	Vepu	
24	<i>Ailanthus excelsa</i>	Perumaram	Simaroubaceae
25	<i>Zizyphus jujuba</i>	Elantha	Rhamnaceae
26	<i>Zizyphus oenopila</i>		
27	<i>Vitis lanceolaria</i>		Vitaceae
28	<i>Ampelocissus latifolia</i>		
29	<i>Cissus vittigines</i>		
30	<i>Cardiospermum halicocabum</i>	Uzhinja	Sapindaceae
31	<i>Mangifera indica</i>	Maavu	Anacardiaceae
32	<i>Anacardium occidentale</i>	Kasumaavu	
33	<i>Moringa oleifera</i>	Moringa	Moringaceae
34	<i>Crotalaria linifolia</i>		Papilionaceae
35	<i>Crotalaria striata</i>	Kilukkampetti	
36	<i>Indigofera linifolia</i>	NeelamariNilamparanda	

37	<i>Tephrosia purpurea</i>	Kozhinjil	
38	<i>Zornia diphylla</i>		
39	<i>Pseudarthria viscida</i>		
40	<i>Alysicarpus rugosus</i>		
41	<i>Desmodium sp</i>		
42	<i>Abrus precatorius</i>	Kunni	
43	<i>Teramnus labialis</i>		
44	<i>Phaseolus trilobus</i>		
45	<i>Dolichos lablab</i>		
46	<i>Pterocarpus marsupium</i>		
47	<i>Cassia fistula</i>	Konna	
48	<i>Cassia occidentalis</i>		
49	<i>Cassia tora</i>		
50	<i>Tamarindus indica</i>	Puli	Caesalpinoideae
51	<i>Mimosa pudica</i>		
52	<i>Acacia auriculiformis</i>	Kurunthotti	Mimosoidea
53	<i>Pithecolobium saman</i>		
54	<i>Ludwigia parviflora</i>		Onagraceae
55	<i>Lawsonia inermis</i>	Mailanchi	
56	<i>Cuphea platycentra</i>		
57	<i>Passiflora leschenaultii</i>		Passifloraceae
58	<i>Carica papaya</i>		Caricaceae
59	<i>Momordica charantia</i>	Paaval	Cucurbitaceae
60	<i>Luffa aegyptiaca</i>		
61	<i>Bryonopsis laciniosa</i>		
62	<i>Melothria maderaspatana</i>		
63	<i>Coccinia indica</i>		
64	<i>Molluga pentaphylla</i>		Aizoaceae
65	<i>Oldenlandia corymbosa</i>		Rubiaceae
66	<i>Oldenlandia herbacea</i>		
67	<i>Morinda tinctoria</i>		
68	<i>Borreria hispida</i>		
69	<i>Vernonia blumea</i>		Compositae
70	<i>Vernonia vicoa</i>		
71	<i>Vernonia cinerea</i>		
72	<i>Anachuvadi scaber</i>		
73	<i>Ageratum conyzoides</i>		
74	<i>Conyza stricta</i>		
75	<i>Blumea oxyodonta</i>		
76	<i>Blumea lacera</i>		
77	<i>Vicoa indica</i>		
78	<i>Eclipta alba</i>	Kayyunni	
79	<i>Synedrella nodiflora</i>		



80	<i>Tridax procumbens</i>		
81	<i>Artemisia parviflora</i>		
82	<i>Emilia sonchifolia</i>	Muyalcheviyan	
83	<i>Bassia latifolia</i>		Sapotaceae
84	<i>Rouwolfia serpentina</i>	Sarpagandhi	
85	<i>Vinca rosea</i>	Nithyakalyani/ Savanari	
86	<i>Alstonia scholaris</i>	Ezhilampaala	Apocyanaceae
87	<i>Holarrhena antidysentrica</i>	Kudakappaala	
88	<i>Wrightia tinctoria</i>	Danthappaala	
89	<i>Ichnocarpus frutescens</i>		
90	<i>Hemidesmus indicus</i>	Naruneendi	
91	<i>Calotropus gigantea</i>		Asclepiadiaceae
92	<i>Holostema ad-kodien</i>	Adapathiyam	
93	<i>Marsdenia volubilis</i>		
94	<i>Canscora pauciflora</i>		Gentianaceae
95	<i>Ipomea seeparia</i>		
96	<i>Ipomea cairica</i>		
97	<i>Evolvulus alsinoides</i>		Convolvulaceae
98	<i>Merremia umbellate</i>		
99	<i>Merremia hastate</i>		
100	<i>Solanum nigrum</i>		
101	<i>Solanum torvum</i>	Kattuchunda	
102	<i>Solanum indicum</i>		Solanaceae
103	<i>Lycopersicon esculentum</i>	Thakkali	
104	<i>Physalis minima</i>		
105	<i>Datura stramonium</i>	Ummam	
106	<i>Scoparia dulcis</i>	Kallurukki	Scrophulariaceae

(Compiled by Ms. Indira E., Ms. Latha, Ms. Indira C K and Dr. Venugopalakrishna Kurup of Department of Botany, NSS College, Ottapalam)

**Appendix 4**  
**List of Student Volunteers**

1. Prasad M. Nair : B. Sc, Zoology
2. Aby Hussain : B. Sc, Zoology
3. Manith : B. Sc, Zoology
4. Ananthakrishnan : B. Sc, Zoology
5. Shilpa : B.Sc, Zoology

**GREEN AUDIT QUESTIONNAIRE 2016-17**

Sl. No.	PARAMETERS	Principal's Room	College Office	Library	Seminar Hall	Canteen	Botany	Chemistry		Computer science	Economics	English	Hindi	History	Malayalam	Mathematics	Physical education	Physics	Zoology	Ladies room	General	Ladies Hostel	Security
1	Number of taps	2	2	2	-	5	7	50	3	3	5	3	4	2	2	3	2	7	10	7	10	44	-
2	Number of leakage taps, if any	-	-	-	-	-	-	10	-	-	1	1	-	1	-	-	2	-	-	3	1	-	-
3	Number of drinking water filters	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
4	Number of water cooler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
5	Water use per day (in litres)	3	10	3	-	250	150	400	150	150	60	250	150	4	3	10	15	15	250	10	-	-	-
6	Organic waste per day (in kg)	-	-	-	-	3	0.25	0.025	-	-	-	-	-	-	-	-	-	-	0.5	-	-	10	-
7	Non- plastic wastes per day (in gm)	-	750	500	-	1000	50	-	-	-	500	100	-	50	250	10	-	-	25	-	-	-	-
8	Plastic/ thermocol wastes per day	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-
9	e- wastes	-	-	-	-	-	-	-	-	50	-	-	2	-	-	-	-	4	-	-	-	-	-
10	No. of bulbs	2	-	10	-	1	1	10	-	-	-	-	1	-	-	1	1	-	1	-	-	6	1
11	No. of tubelights	3	11	-	3	3	10	6	13	21	4	7	7	1	3	7	3	8	26	10	10	10	1
12	No. of LED/ CFL	2	-	2	2	2	-	-	-	-	3	-	-	1	-	-	-	3	-	8	5	40	1
13	No. of computers	1	9	-	-	-	1	2	10	40	7	4	2	1	1	6	1	13	1	-	-	-	-
14	No. of photocopiers/ scanners	1	4	-	-	-	-	1	1	3	3	2	-	-	-	2	-	-	-	-	-	-	-
15	No. of printers	-	3	-	-	-	1	1	1	1	3	2	1	1	1	2	1	2	1	-	-	-	-
16	No. of LCD projectors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	No. of members using own/private vehicles	-	8	-	-	-	-	1	-	4+	5	5	2	1	1	6	1	1	2	-	-	--	-
18	No. of members using public transportation (%)	-	20	100	-	100	100	50	60	5	57	44	20	0	90	20	90	90	60	-	-	--	100
18	Extension related to environment	-	-	-	-	-	Y	Y	N	N	Y	N	Y	N	Y	N	N	N	Y	N	Y	N	-