

**Dr. S.R.K. Government Arts College  
Yanam, Puducherry.**

**Green Audit Committee - 2019**

S. No.	Name	Designation	Position in Committee
1	Dr. J.V. Sudhakar	Assistant Professor Department of Botany	Coordinator
2	Sri. B. Jagadeesh Kumar	Lecturer in Botany SKBR Degree College Amalapuram East Godavari (Dist). Andhra Pradesh	External Auditor
3	Dr. J. Chandra Sekhara Rao	Assistant Professor Department of Zoology	Internal Auditor
4	Dr. T. Venkata Swamy	Assistant Professor Dept. of Chemistry	Internal Auditor
5	Mrs. S.Vijaya	Non-teaching Staff	Member
6	Mr. Adhi Laxmi	Non-teaching Staff	Member

Place : Yanam

Date: 23-10-2019



  
Dr. V. Bhaskar Reddy  
[PRINCIPAL]  
Principal  
Dr.S.R.K.Govt.Arts College  
YANAM - 538 464.

# Green Audit

## Certificate

This is to certify that a 'Green Audit' for Dr. S.R.K. Government Arts College, Yanam, Puducherry (U.T) – 533464 has been conducted on 23–10–2019 to assess the institution's green initiatives taken up against environmental policies and objectives. The efforts of the institution on the green environment, which included waste management, water management, energy management and policies and facilities in the institution are considered.

Place : Yanam

Date : 23–10–2019

  
Sri. B. Jagadeesh Kumar

External Auditor

**B JAGADEESH KUMAR**  
Lecturer in Botany  
S K B R Degree College  
Amalapuram-533 201  
East Godavari District  
Andhra Pradesh

  
Dr. J. Chandra Sekhara Rao

Internal Auditor

**Dr. J. Chandra Sekhara Rao**  
M.Sc., Ph.D  
Assistant Professor  
Department of Zoology  
Dr. SRK Govt. Arts College  
YANAM-533 464, Puducherry (UT)

Note: Report Enclosed

  
Dr. J.V. Sudhakar

Coordinator

**Dr. J.V. Sudhakar**  
M.Sc., B.Ed., Ph.D.  
Assistant Professor & Head  
Department of Botany  
Dr. SRK Govt. Arts College  
YANAM - 533 464, Puducherry (UT)

  
Dr. T. Venkata Swamy

Internal Auditor

**Dr. Tangeti Venkata Swamy**  
M.Sc., Ph.D.  
Assistant Professor  
Department of Chemistry  
Dr. SRK Govt. Arts College  
YANAM-533 464, Puducherry (UT)

# **GREEN AUDIT REPORT**

**(2019-2020)**

**Dr. Sarvepalli Radhakrishnan Govt. Arts College**

**Pillaraya street, Yanam – 533 464, UT of Pudeucherry**

**(Affiliated to Pondicherry University)**

**Ph: 0884-2324123 (Office), e-mail: srkartcollege@gmail.com**

**website: www.srkgacyanam.edu.in**



**Prepared By**

**Green Audit Committee & Department of Botany**

**2019-20**



## **Acknowledgements**

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# Executive Summary

A clean and healthy environment aids effective learning and provides a favourable learning environment. Educational institutions now a days are becoming more sensitive to environmental factors and more concepts are being introduced to make them eco-friendly. Under these circumstances, Green auditing becomes a valuable tool in the management and monitoring of environmental and sustainable development programs of the college.

Green auditing is a process whereby an organisation's environmental performance is tested against its environmental policies and objectives. The purpose of the audit is to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The methodology included: Preparation and filling up of questionnaire, Physical inspection of the campus, Observation and review of the documentation, interviewing key persons, Data collection, Data analysis and recommendations, Using Survey Forms for Water Management, Green area Management, Energy Management and Conservation, Solid and E-Waste Management. It works on the several facets of 'Green Campus' including Water Conservation, Tree Plantation, Garden development, Increasing Potted plants in the corridors of various departments, Solid Waste Management, Energy Management by improving LED tubes and Lamps, Establishment of Compost and Vermi-compost units, Alternative Solar Energy by establishing Photovoltaic cells on the terrace of buildings and Mapping of Biodiversity of the campus. Green audit can make a tremendous impact on student health and learning, college operational costs and the environment. It can also create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of Green impact on campus. Green auditing promotes financial savings through reduction of resource use. It gives an opportunity for the development of ownership, personal and social responsibility for the students and teachers.

The baseline data prepared for the Dr. SRK Govt. Arts College, Yanam will be a useful tool for campus greening, resource management, planning of future projects, and a document for implementation of sustainable development of the college. Existing data will allow the college to compare its programmes and operations with those of peer institutions, identify areas in need of improvement. We expect that the college will be committed to implement the green audit recommendations. We are happy to submit this green audit report to the Principal, Dr. SRK Govt. Arts College, Yanam – 533 464, UT of Puducherry.

## **1. Introduction**

A clean and healthy environment aids effective learning and provides a conducive learning environment. There are various efforts around the world to address environmental education issues. Green Audit is the most efficient and ecological way to manage environmental problems. Green Audit can be defined as systematic identification, quantification, recording, reporting, analysis and of components of environmental diversity of one institute or college. The 'Green Audit' aims to analyse environmental practices within and outside the college campus, which will have an impact on the eco-friendly atmosphere. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth of carrying out Green Audit. Green audit is assigned to the criteria 7 of NAAC, National Assessment and Accreditation Council. It is necessary to conduct green audit in college campus because students become aware of the green audit, its advantages to save the planet and they become good citizen of our country. Thus, Green audit becomes necessary at the college level.

## **2. About the College**

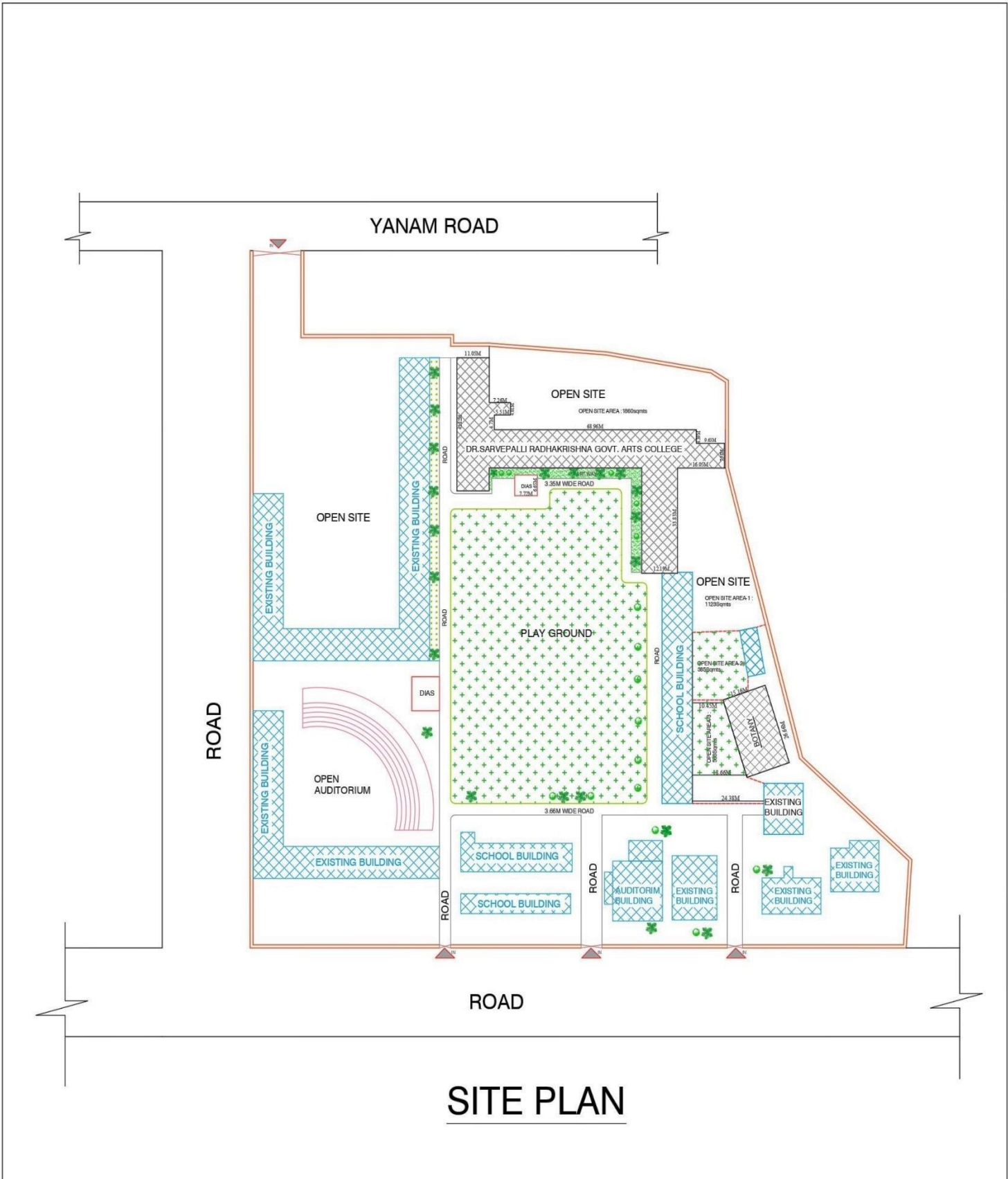
The college was started in the year 1973 with a progressive outlook to provide higher education to the people of Yanam, a pocket of Union Territory of Puducherry (formerly a French colony) is situated geographically in East Godavari district of Andhra Pradesh. It was named after Dr. Sarvepalli Radhakrishnan, a renowned teacher and former President of India.

It was a defining moment in the history of Yanam as the long-yearned dreams of the local populace of moving up the echelons of education and to improve their lot in life came to fruition.

Formerly, it was affiliated to the Andhra University, Waltair, and offered B.A., B.Com., and B.Sc., degree courses. Subsequently, after the establishment of The Pondicherry University (a Central University) in Puducherry by the Government of India, the affiliation for the UG courses was switched over to The Pondicherry University from the academic year 1986-87. The UGC approved this college under 2(f) & 12 (B) during 1984-'85 and started releasing funds under various schemes.

The college established its reputation when the visiting NAAC team granted "B" grade during its visit in 2015. The college enhanced its status as the sole caterer to the higher academic ambitions of the students of this town by introducing two further science courses, namely B.Sc. (Botany) and M.Sc (Zoology) in the academic year 2020-21.

At present, this college offers B.A. (Economics), B.Sc. (Mathematics, Physics, Chemistry, Computer Science, Zoology and Botany), B.Com. (General), M.A., (Economics), M.Com. (General), M.Sc (Chemistry) and M.Sc (Zoology) courses. Thus, the college has been showing a sustained growth rate by keeping its ear to the ground and expanding the courses on offer.



# SITE PLAN

TITLE : SITE PLAN

PROJECT:  
 GOVERNMENT OF PUDUCHERRY Dr. SARVEPALLI RADHAKRISHNAN  
 GOVT. ARTS COLLEGE AFFILIATED TO PONDICHERRY UNIVERSITY ,YANAM 533464.

CHECKED :	Faiz
DRAWN	GANESH
DATE :	19-11-21
SCALE :	NTS



**FAIZ DESIGNS**  
 ARCHITECTS & INTERIORS  
 NEAR R.M.C.STADIUM,  
 351,ROAD NO.100,  
 MADHAV NAGAR  
 KAKINADA-533003.  
 Cell : 7997455777,9848281380  
 mail : faiz.abcd@gmail.com

**Aerial view of Dr. SRK Govt. Arts College, Yanam**



### **3. Objectives of the Study**

The main objective of the green audit is to promote the Environment Management and Conservation in the College Campus. Other objectives are as follows:

- To identify, quantify, describe and prioritize framework for creating green campus
- To provide basis for environmentally improved sustainability
- To develop environmental ethics and value systems among the stakeholders
- To enable waste management through reduction of waste generation, solid- waste and water recycling
- To create plastic free campus and evolve health consciousness among the students
- Impart environmental education through systematic environmental management approach and improving environmental standards
- To recognize the cost saving methods through waste minimizing and managing
- Empower the organizations to frame a better environmental performance

### **4. Methodology**

The methodology included to perform the green audit is as follows:

- Preparation and filling up of questionnaire
- Physical inspection of the campus
- Observation and review of the documentation
- Interviewing key persons
- Data collection, Data analysis and recommendations
- Using Survey Forms for the following areas:
  1. Auditing for Water Management
  2. Auditing for Green area Management
  3. Auditing for Energy Management and Conservation
  4. Auditing for Solid and E-Waste Management

Based on the above methodology all observations recorded and recommended various measures for further improvement. Observations and Recommendations category wise elucidated here.

### **5. Water Management audit**

Water Management indicator addresses water sources, water consumption, flood water, 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.

## a. Observations

The study observed that the major source of water in the college is ground water pumping to Overhead Water Tanks through electric motor and Municipal connection for Drinking Water. Water is used for laboratory, drinking purpose, toilets and gardening. There are four Reverse Osmosis (RO) purifiers fitted in the college for drinking water purpose of both students and staff. One RO purifier for each floor and one is for the administrative block. The waste water from the toilets, RO water purifiers is used for the gardening purpose. During the survey, no loss of water is observed through over flow of water from overhead tanks and RO purifier outlets. It is observed that some taps in the laboratories, student and staff toilets are leaking. The data collected about usage of water from all the departments is examined and verified. On an average the total use of water in the college is 2,000 Litres/day, which include 1,700 Litres/day for domestic, gardening purposes and 300 Litres/day for drinking purpose. Rain water harvesting unit with PVC pipes has observed in the campus at the back side of academic block for recharging ground water level.





RO Purifiers in Academic & Administrative Blocks

## **b. Recommendations**

- Minimize wastage of water and use of electricity during water pumping, filtration process of RO purifiers.
- RO purifiers should be regularly serviced.
- Leakage taps may be repaired and replaced in laboratories and toilets.
- Rain water harvesting units must be reconstructed for recharging the ground water level.
- Gardens should be watered by using drip/sprinkler irrigation system to minimise water use.

## **6. Green area Management audit**

This includes the Botanical Garden, plants, greenery and sustainability of the campus to ensure that the buildings conform to green standards. This also helps in ensuring that the Environmental Policy of the country is enacted, enforced and reviewed using various environmental awareness programmes.

### **a. Observations**

The college campus is located in the centre of the Yanam town where the schools, education offices, Junior college are existed. Hence, various tree plantation programmes, gardening are being organized at the campus and surrounding villages through Eco-club, NCC (National Cadet Cops) and NSS (National Service Scheme) units. This program helps in encouraging eco-friendly environment which provides pure oxygen within the institute, control the pollution and create environmental awareness among villagers. It is also observed that some of the departments like Department of Botany, Zoology, Chemistry, Computer Science, Economics, Administrative office etc., are introduced Potted plants in the corridors of respective departments which gives pleasant green atmosphere.

### **No. of Potted Plants counted in each department are as follows:**

- Botany – 55 Plants
- Zoology – 54 Plants
- Economics – 30 Plants
- Chemistry – 25 Plants
- Computer Science – 5 Plants
- Administrative Block – 10 Plants



Dept. of Zoology



Dept. of Chemistry



Dept. of Economics



Dept. of Botany

## Potted Plants in corridors of various departments

National Service Scheme (NSS) Unit I, II have adopted Farampeta and Kurasampeta villages and planted various tree species in the respective villages and college Botanical Garden which is located in the backside of academic block and Infront of the Botany department. The saplings are supplied by Department of Agriculture, Yanam and some of the samples brought by the students. It is also observed that some trees were uprooted in the campus due to cyclones and heavy wind and rainfall.

**Important tree/shrub species identified in the college are tabulated below:**

<b>S. No.</b>	<b>Common Name</b>	<b>Botanical name &amp; Family</b>	<b>Approx. Numbers</b>
1.	Australian wattle, Northern Black Wattle	<i>Acacia auriculiformis</i> - Fabaceae	4
2.	Lebbeck, Lebbek tree, Flea tree	<i>Albizia lebbeck</i> - Fabaceae	4
3.	Rain tree, Monkey pod	<i>Albizia saman</i> - Fabaceae	6
4.	Devils tree, Scholar's tree	<i>Alstonia scholaris</i> - Apocynaceae	1
5.	Neem tree or Margosa tree	<i>Azadirachta indica</i> - Meliaceae	1
6.	Golden shower tree, Indian laburnum	<i>Cassia fistula</i> - Fabaceae	1
7.	Butter cup tree or Silk-cotton tree	<i>Cochlospermum vitifolium</i> - Bixaceae	4
8.	Buttonwood or Button mangrove	<i>Conocarpus erectus</i> - Combretaceae	6
8.	Cannon-ball tree, Shivalingam chettu	<i>Couroupita guianensis</i> - Lecythidaceae	1
9.	Sisham, Sissu	<i>Dalbergia sissoo</i> - Fabaceae	2
10.	Gul mohar, Fire tree	<i>Delonix regia</i> - Fabaceae	3
11.	Banyan tree	<i>Ficus benghalensis</i> - Moraceae	1
12.	Cluster fig tree	<i>Ficus racemosa</i> - Moraceae	1
13.	Peepal, Holy fig tree,	<i>Ficus religiosa</i> - Moraceae	2
14.	Silver oak	<i>Grevillea robusta</i> - Proteaceae	1
15.	West Indian elm	<i>Guazuma ulmifolia</i> - Sterculiaceae	6
16.	Chinese ixora	<i>Ixora chinensis</i> - Rubiaceae	1
17.	Sea hibiscus	<i>Hibiscus tiliaceus</i> - Malvaceae	2
18.	Chinese hibiscus	<i>Hibiscus rosa-sinensis</i> - Malvaceae	4
16.	Macaranga, Boddi, Konda tamara	<i>Macaranga peltata</i> - Euphorbiaceae	2
19.	Mango	<i>Mangifera indica</i> - Anacardiaceae	2
20.	Drum stick	<i>Moringa oleifera</i> - Moringaceae	1
21.	Jamaicam-cherry, Panama cherry	<i>Muntingera calabura</i> - Elaeocarpaceae	2
22.	Kadamba	<i>Neolamarckia cadamba</i> - Rubiaceae	1
23.	Oleander or Nerium	<i>Nerium oleander</i> – Apocynaceae	5
24.	Yellow flame tree, Copper pod tree	<i>Peltophorum pterocarpum</i> - Fabaceae	2
25.	Indian Beech, Pongam, Kanuga	<i>Pongamia pinnata</i> - Fabaceae	20
26.	False Ashok, Asoka, Indian Mast	<i>Polyalthia longifolia</i> - Annonaceae	6
27.	Royal palm, Cuban Royal Palm	<i>Roystonea regia</i> - Arecaceae	6
28.	Sapindus	<i>Sapindus</i> sp. - Sapindaceae	1
29.	African tulip tree, Squirrel tree	<i>Spathodea campanulata</i> - Bignoniaceae	1
30.	Indian Almond, Jangli badam	<i>Sterculia foetida</i> - Sterculiaceae	6
31.	Jamun	<i>Syzygium cumini</i> - Myrtaceae	1

32.	Rosy trumpet tree	<i>Tabebuia rosea</i> - Bignoniaceae	3
33.	Arjuna or Arjun tree	<i>Terminalia arjuna</i> - Combretaceae	6
34.	Badam, Indian Almond	<i>Terminalia catappa</i> -- Combretaceae	2
35.	Yellow bells	<i>Tecoma castanifolia</i> - Bignoniaceae	1
36.	Indian tulip tree	<i>Thespesia populnea</i> - Malvaceae	1



Plantation programs in Botanical Garden by NSS & Eco club Units

## **b. Recommendations**

- Eco-friendly activities and plantation programmes should be encouraged and they may be conducted by collaboration of Eco-club, NCC and NSS units.
- Keeping Potted plants in the corridors must be implemented by other departments like Commerce, Physics, Mathematics, Languages and Library.
- Tree species must be planted in the place of up rooted plants.
- Keeping Indoor and Bonsai plants inside the staff rooms to be encouraged.
- Review periodically the list of trees planted in the campus, botanical garden, allot numbers to the trees and keep records. Assign scientific names to the trees.
- Encourage students in preparation of ‘Seed balls or Seed bombs’ which can be placed in the campus and waste lands of in and around Yanam region during rainy season.
- Celebrate every year 5th June as ‘Environment Day’ and plant trees on this day to make the campus Greener.

## **7. Energy Management and Conservation audit**

Energy use is clearly an important aspect of campus sustainability. So, this indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliance and vehicles.

### **a. Observations**

Energy source utilized by the college campus is only electricity. Total average energy consumption is determined as **12,600 Units/month**. The entire campus including office room, class rooms, laboratories, department staff rooms, toilets etc., are equipped with florescent tube lights (36W), LED tube lights (20W), LED lamps (10 W, 12W, 15 W), CFL lamps, fans and Air Coolers (only in Computer room, Office and Principal room). It is observed that more florescent tube lights are existing when compare to LED tube lights. Tungsten incandescent bulb which consumes more electricity are not using in any location. Solar energy of photovoltaic cells or any other alternate renewable source of energy resources are not installed in the campus. Computers are set to automatic power saving mode when not in use. Students and staff have strictly adhered the rule of switching lights and fans while leaving the classrooms and closing the departments. Also, campus administration runs switch–off drill on regular basis.





**LED Fitting @ Botany Department**



**LED Fitting @ Administrative Block**



**LED Fitting @ Academic Block**



**LED Fitting @ Administrative Block**

## **b. Recommendations**

- Old florescent tube lights (36W), CFL bulbs should be replaced with LED tube lights (20W), LED lamps (10 W, 12W, 15 W).
- Establish Solar energy photovoltaic cells on the terrace of administrative and academic blocks (Now Botany block) as an alternative energy resource.
- Strict instructions must be given to students and staff to switch off all lights and fans when they leave the class rooms and laboratories.
- Cleaning of tube-lights/lamps and checking electric supply points to be done periodically.

## **8. Solid and E-Waste Management audit**

This indicator addresses waste production and disposal of different wastes like paper, food, plastic, biodegradable, construction, glass, dust etc. and recycling. 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.

E-waste can be described as consumer and business electronic equipment that is near or at the end of its useful life. This makes up about 5% of all municipal solid waste worldwide but is much more hazardous than other waste because electronic components contain cadmium, lead, mercury, and Polychlorinated biphenyls (PCBs) that can damage human health and the environment.

### **a. Observations**

Waste generation from tree droppings is a major solid waste generated in the campus also paper, food, chocolate and biscuit wrappers, plastic water bottles, polythene bags biodegradable, dust, glassware from laboratories have been generated by the students and staff. Big Plastic bins are kept in each floor for littering. Small Dustbins are also provided to each department staff rooms and laboratories. The waste is segregated at source by providing separate dustbins for Bio-degradable and non-Biodegradable waste. Outsourcing and MTS staff regularly cleaning and disposing the solid waste. Two solid waste management pits are observed in the backside of the academic block and one in nearby Botany department. Single sided used papers reused for writing and printing in all departments to reduce the paper usage. Most of the staff and students are using electronic media (e-mail, Whatsapp, Telegram etc.) for sending official communications, govt. circulars, files, assignments and letters to reduce the usage of paper. Metal waste and wooden waste is stored and given to authorized scrap agents for further processing. The solid waste is sometimes collected by the municipality and Yanam Oldage Home Tractors and disposed by their methods. Eco-club students are making different useful items, models from waste and unused materials. They are displayed in Department of Botany and Zoology.

E-waste generated in the campus is very less in quantity. Administration conducts the awareness programmes regarding E-waste Management with the help of various departments. The E-waste and defective item from computer laboratory and other departments is being stored properly. The college has decided to contact approved E-waste management and disposal facility in order to dispose E-waste in scientific manner through condemnation and auction method.

### **b. Recommendations**

- Reduce the absolute amount of waste that is produced from college students, staff and office.
- Try to use recycling facilities provided by Municipality and private suppliers if any for glass, cans, white, coloured and brown paper, plastic bottles, batteries, print cartridges, cardboard,

Therma coal and furniture.

- Important and confidential papers and registers after their validity to be sent for pulping.
- Vermicomposting unit should be constructed in the backside of Academic block apart from existing compost units.
- Recycle or safely dispose of old computers and all unused electrical Appliances must be practiced.
- Always purchase recycled resources where these are both suitable and available.



Compost Units at Academic block and Botany block



Collection of solid waste and awareness lecture on solid waste management



Eco-friendly items prepared by students with solid and paper waste

## 9. Conclusions

Considering the above-mentioned facts, the environmental awareness initiatives taking by the college are significant. The plantation programmes, developing botanical garden, keeping potted plants in the corridors of each department, solid waste management and composting pits, using LED tube lights and lamps are noteworthy steps. Few recommendations are added to curb the menace of waste management using eco-friendly and scientific techniques, construction of Vermi-compost units, further garden development, repairing of leakage water taps, installation of Solar energy photovoltaic cells on terrace etc. This may lead to the prosperous future in context of Green Campus of the college, and thus sustainable environment and community development of Yanam region.



**Popular Green Initiatives to be practiced in the college campus**