



## ENVIRONMENTAL AUDIT REPORT



SAHYADRI SCIENCE COLLEGE,  
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## Sahyadri Science College, Shivamogga

### Campus Green Audit

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ENVIRONMENTAL CONSULTANT

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*With Contributions from*

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**Dr. Ha Ma. Nagarjuna,** Department of Kannada.

**Dr. K L Naik,** Head, Department of Zoology.

**Dr. Vital Rao K S,** Department of Chemistry.

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**Students Active Members of Eco Club,**

Sinchana	-	III CBZ
Hamsini	-	III CZBt
Amulya	-	II CBEs
Sandhya	-	I CB
Bhavana	-	I CB

  
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(Constituent College of Kuvempu University)  
SHIMOGA, Karnataka State.

## Declaration

We the principal, faculty, staff and students of SAHYADRI SCIENCE COLLEGE, SHIVAMOGGA are deeply concerned of the fastest scale and movement of pollution, degradation and depletion of resources leading to many environmental problems.

Environmental problems like Green house gases, Global warming, Ozone layer depletion and Climate change are the main issues we see, we listen and we talk of that, everywhere at local, national and international levels but we are not serious about resolving the problems. We need to create awareness regarding such issues which threaten the survival of all living beings on this earth including the humans too. These environmental problems have been caused by unsustainable production and consumption patterns and inequitable use of resources across the world.

There is an urgent need to think of such issues globally in a sustainable way adopting green technologies in our life to have a better future for the next generations using equitable and proper resource management in developmental projects.

Environmental challenges can be solved by creating awareness at institutional level. This awareness is needed in education research and policy making to reach our goals towards sustainable environment.

We therefore, agree to take the following actions at our institution for sustainable development:

- 1. Increase Awareness of Environmentally Sustainable Development-** by conducting many programs (local, regional and national) with NGO's or institutions in creating environmental awareness towards sustainable future.
- 2. Create an Institutional Culture of Sustainability-** Encourage all institutions to engage in education, research, policy formation, and information exchange on over population, environmental issues, and developments to move towards global sustainability.
- 3. Educate for Environmentally Responsible Citizenship-** Environmental education is imparted to students in the curriculum to create awareness and make them understand the need to be responsible citizens.
- 4. Foster Environmental Literacy for All-** Create programs on environmental capacity building to develop all students as well as faculty and staff in the college.

**5. Practice Institutional Ecology-** Maintain environmental responsibility by establishing institutional ecology policies and practices of resource conservation, recycling, waste reduction, and environmentally sound operations.

**6. Involve All Stakeholders-** Encourage involvement of Government, NGO's, and industry in supporting interdisciplinary research, education, policy formation, and information exchange in environmentally sustainable development to solve environment related issues.

**7. Collaborate for Interdisciplinary Approaches-** Involve university faculty and administrators with environmental practitioners to develop interdisciplinary approaches in curricula, research initiatives, operations, and outreach activities that support an environmentally sustainable future.

**8. Enhance Capacity of Primary and Secondary Schools -** Active participation in creating awareness and responsibility in various schools and communities for good and clean environment.

**9. Broaden Service locally and regionally-** Work with other institutions and NGO's towards adopting environmentally sound practices and promoting eco-friendly activities to conserve the environment.

**10. Maintain the Movement** – Continuously sustain the balance to inform and support each other's effort towards a sustainable future.


## Acknowledgements

This audit report could not have been completed without the assistance and support of several people on the SSC Campus. In particular, we need to acknowledge the enormous help provided by Prof B.P. Veerabhadrappe, Vice- Chancellor, Kuvempu University, Smt. Anuradha G, Registrar (Administration), Dr. Naveen Kumar, Registrar (Evaluation), Sri Ramakrishna, Finance Officer, and Dr. Vagdevi H.M, Principal & all the faculty and students particularly Coordinator and students of Eco Club, SSC.

This audit could not have been conducted effectively without the active participation and help from various groups of students particularly from the departments of physics and Computer Science. Others on campus who provided valuable information and help include –  
Dr. Chandrashekhara M N, NAAC Coordinator, Dr. Rajeshawari N, IQAC Coordinator. Dr. Parameshwara Naik T, Eco club President, Dr. Nagaraj Parisara HOD, Department of Environmental Science, Krishna Murthy G S, Office Staff, Girish S J, Attender, Mr. Harisha K Environmental consultant has provided guidance, ideas and helpful suggestions to make the audit more complete and robust. Although we were not able to accomplish all the facets of the audit that the experts challenged us to achieve, this audit report has been greatly enhanced by their expertise in environmental auditing, scientific acumen, unflinching persistence and support.


We would like to thank Mr. Harisha.K Environmental Consultant for both hosting a visit and coming to visit us at SSC campus and providing his experience and guidance.

Finally we would like to thank all the members of the SSC Campus Eco Club group who provided motivation and a critical outlet for this audit to use for future sustainability efforts on campus.

  
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## Executive Summary

**SAHYADRI SCIENCE COLLEGE, SHIVAMOGGA** is a leading Constituent Institution of Kuvempu University offering Under Graduate, Post Graduate and P.hd Courses in the college. Latest environmental growth and an awareness is created in students, faculty and all staff towards becoming environmentally sound and a more sustainable eco-friendly campus.

The Campus is spread over 69 acres with a Good Green ambience. The college has nearly 150 Faculty, 2383 Students, 16 non teaching faculty, 13 House keeping staff and 2 Watchmen's. Education at the college is open to all young boys and Girls irrespective of religion, caste or community. It imparts quality education to the economically and socially backward classes, scheduled castes and scheduled tribe students and also to students from neighboring states of Karnataka and as well as rest of India. University education is provided not only to acquire knowledge but also to inculcate a sound philosophy of life for holistic living. To fulfill these objectives the College strives to create a scholastic environment through effective teaching, curricular and co-curricular activities and democratic disciplining.

The waste management is carried out well by installing dustbins at all floors. As usual daily cleaning is carried out along with weekend cleaning work by NSS and Eco-club Members has kept the routine check on clean campus. and all the other red waste generated is disposed safely in the Girls Hostel using the Sanitary Napkin Destroyer. E-waste is collected and disposed safely to a recycler.


Energy audit is carried out and the monthly electricity consumption by lighting system has been reduced by installing LED bulbs and tubes with reflectors in the campus. A solar roof top PV system of 20-35 KWp solar grid will be installed in the campus in the upcoming Days. Suggestions are given to reduce minimum power consumption by switching of lights, computers and fans when not in use.

Car pooling, college bus and use of bi-cycle by students in the campus have reduced the carbon emission which has contributed to carbon neutrality to make the institute a green campus.

College is providing significant environmental education, research, awareness both by faculty, students in the departments of Physics and other departments.



These are few milestones of how Sahyadri Science College, Shivamogga is going Green campus, all documented in this detail report. However, the audit has started to make the institution an eco-friendly and sustainable campus in the coming years to become a model Green institution.

  
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## Overview of Campus Environmental Audit

SAHYADRI SCIENCE COLLEGE, SHIVAMOGGA has committed to conservation of environment through sustainable and eco-friendly technologies.

The current environmental audit represents the initial stage in the effort of building a sustainable and eco-friendly campus at SCC. It's true that the definition of sustainable development is defined in various ways, but for this project we define sustainable development as development intended to encompass environment, economy and social issues; but is often compartmentalized as an environmental issue. In its early manifestations, sustainable development was largely a Green agenda, or bringing environmental considerations in economic development.

The Audit was conducted with the active assistance of

**Mr. Harisha K**, Environmental Consultant.

**Dr. Parameshwara Naik T**, Eco club President.

**Dr. Chandrashekhar M N**, NAAC Coordinator.

**Dr. Rajeshawari N**, IQAC Coordinator.

**Dr. Nagaraj Parisara**, HOD, Department of Environmental Science

### Eco Club Staff Active Members

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## Overview of Sahyadri Science College, Shivamogga


SCC was established in the year 1941 with the Degree courses B.Sc ,BCA ,M.Sc and P.hd with 2383 students and till date has crossed several barriers effectively on its way to impart quality education with un disputable physical infrastructure and learning models. This has been the legacy, for the past eight decades since its establishment and looking forward towards taking one more challenge to its stride in providing education with quality and styled to reach the mass with limited time and available resources. Achievements are big enough to be dreamt and successive dreaming leads to achievements accrued over a period of time. The Institution has been able to make remarkable progress in all spheres of the academics and has been able to mark these achievements in academics, event management, academic evaluation and results, quality in leadership, learning outcome with the use of infrastructure, the basic set of guidelines and way of looking at various aspects has made remarkable progress and has seen several changes as days have passed.

Today the institution is providing a quality education, offering from graduate, courses to economically and socially backward classes, scheduled castes and scheduled tribe students coming from different parts of the state and also from rest of India. The institution with an illustrious past, marches ahead with long strides having the vision to scale greater heights in the coming years.

**Vision:** Sahyadri Science College shall strive to become a centre of excellence in Teaching and promoting research in basic and Applied sciences to provide high quality value based under graduates and Post graduates education to meet the regional and Global Challenges.

**Mission:** Sahyadri Science College is committed to :

- Foster Creativity in Teaching, Learning and Research of Basic and Applied Sciences to build a Knowledge base and promote quality initiatives.
- To make Science Education Attractive and Accessible.
- Develop Scientific Knowledge to meet the Societal needs.

  
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## Ecology of SHIVAMOGGA

Shivamogga is situated in the mid south-western part of the state. It is bestowed with abundant natural resources. The western area of the district consists of a mountainous terrain, while on the eastern side, there is a striking transition from malnad and semi-malnad to maidan. The district is bounded on the east by the Davangere district, on the south by the Chikamagalur district, on the west by the North and South Canara districts and on the north by the Haveri and Davangere districts. Its greatest length from east to west is 152.9 kms and from north to south is 128.8 kms.

The important rivers that flow through the Shivamogga districts are the Tunga, Bhadra, Tungabhadra, Sharavati, Kumudvathi and Varada. The Tunga and Bhadra unite to form Tungabhadra at Kudali in Shivamogga taluk, 14 kms from Shivamogga city. Every river in the district has its own mythological association. The district has a rich and varied flora; the major contributing factors to this variety bring differences in rainfall and topography within the district. The 2<sup>nd</sup> Highest rainfall getting place in the country is Agumbe has an annual average rainfall of 8276 mm.

In spite of the availability of abundant natural resources and the establishment of some large scale industries like The Mysore Iron and Steel Ltd, The Mysore Paper Mills and The Tungabhadra Sugar Works etc. Sharavathi hydro electric power generation unit is in the district.

College campus has an area of 69 acres, which is located in the heart of the Shivamogga City, GPS coordinates (13° 27'N 76°04' E) climatically a well favored City, which is a part of the South Deccan of peninsular India. The highest maximum temperature of 35.8°C in April/May to the lowest minimum of 14.9°C in December/January. The mean annual rainfall is 1042 mm. The average altitude of the City is 569 mts. above the MSL.

*Revised*  
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# Green Audit

To protect the environment along side with sustainable growth and eco friendly development is the mission of the college and tree plantations is the major concern to manage and maintain the greenery. This initiative will be adopted to beautify our premises in providing a good atmosphere for the academic and non-academic pursuits.

The college is situated in the heart of the city which will be transformed with plantation into an abundance of flora and fauna both inside and outside the campus in coming days. Green audit is carried out in the campus regularly by the staff, eco-club members periodically supervising in maintaining the green campus by planting new trees. Environmental education is included in the curriculum of the college for all the streams .

## Flora

Identification/enumeration of flora was conducted from Department of Botany and Seed Technology, Zoology & Environmental Science.

### List of some plants in the campus

Sl.No	Botanical Name	Common Name	Family
1.	Acalypha amentacea	Copper Leaf	EUPHORBIACEAE
2.	Adenium obesum	Desert Rose	APOCYNACEAE
3.	Adenantherapavonina	Red Bead Tree (Goonja)	FABACEAE
4.	Aglaonema crispitum	Chinese Evergreen	ARACEAE
5.	Alstoniascholaris	Devil's Tree (Saptaparni)	APOCYNACEAE
6.	Alternanthera ficoidea	Kausal	AMARANTHACEAE
7.	Anona reticulata	Bullock's Heart (Ramphal )	ANNONACEAE
8.	Annona squamosa	Sitaphal	ANNONACEAE
9.	Araucaria heterophylla	Christmas Tree	ARAUCARIACEAE
10.	Artocarpus heterophyllus	Jackfruit	MORACEAE
11.	Azadirachta indica	Neem Tree	MELIACEAE
12.	Bambusa vulgaris	Bamboo	POACEAE

13.	Barringtonia asiatica	Fish Poison Tree	LECYTHIDACEAE
14.	Bougainvillea galabra	Paper Flower	NYCTAGINACEAE
15.	Bougainvillea spectabilis	Bougainvel (Paper Flower)	NYCTAGINACEAE
16.	Caladium bicolor	Elephant Ear (Angel Wings)	ARACEAE
17.	Cassia fistula	Golden Shower Tree	CAESALPINAEE
18.	Anacardium occidentale	Cashew Tree	ANACARDIACEAE
19.	Mangifera indica	Mango Tree	ANACARDIACEAE
20.	Artabotrys dosatissimus	Monoranjini	ANNONACEAE
21.	Acacia feregina	Bannimara	MIMOSAE
22.	Couravapitaguinnensis	Nagalinga Pushpa	LEUPHTHIDACEA
23.	Dombeye spectabilis	Maple Leaved Dombeye	MALVACEAE
24.	Hibiscus rosensis	China Rose	MALVACEAE
25.	Pelliforum ferruginionum	Copper Pad Tree	CAESALPINAEE
26.	Partiabilglandulosa	Partia	MIMOSAE
27.	Ficus religiosa	Peepal Tree	MORACEAE
28.	Ficus glomerata	Basarimara	MORACEAE
29.	Ficus elastica	Indian Rubber Plant	MORACEAE
30.	Ficus krishnae	Sacred Fig Tree	MORACEAE
31.	Ficus benzaonina	Weeping Fig	MORACEAE
32.	Podocarpus	Fern Pine	PODOCARPACEAE
33.	Thuja occidentalis	White Cedar	CUPRESSACEAE
34.	Cupressus	Cypress	CUPRESSACEAE
35.	Lamiafurfura	Cardboard Cycad	LAMIACEAE
36.	Cycas revdecta	Sage Palm	CYACADACENAE
37.	Caryotaurens	Toddy Palm	ARACACEAE
38.	Hyopherbslongicaulis	Bottle Palm	ARACACEAE
39.	Ravenellamadagarensis	Trovellers Tree	ARACACEAE
40.	Holmskoilideasanguines	Cup And Saucer Plant	VERBEACEAE

41.	Baugonvillea	Paper Flower Plant	XLYETAGINACEAE
42.	Tecomastans	Tecoma	BEGNONIACEAE
43.	Spathodiacompanulata	Spathodia	BEGNONIACEAE
44.	Millingtonia grandiflora	Akasha Mallige	BEGNONIACEAE
45.	Tectona grandis	Teak	VERBENACEA
46.	Dendrocalamusroting	Kirubidirec	POACEAE
47.	Sterilitziareginae	Birds Paradise	MUSCACEAE
48.	Heliconia rostrats	False Birds of Paradise	MUSCACEAE
49.	Callistemenlanceolatus	Guava Tree	MYSTACEAE
50.	Calliandrahaematocephala	Bottle Brush Tree	MYSTACEAE
51.	Enterolobiumsamar	Rain Tree	MIMOSAE
52.	Aegle marmelos	Holedasawala	RUTOCEAE
53.	Legerstromia parviflora	Betta Konagille	LEPHTHROCEAE
54.	Dilliinia indica	Blue Sky Flower	DILLININCEAE
55.	Thunbargia grandiflora	Bell Flower Tree	ACANTHACEAE
56.	Thevisis peruviana	Gante Hoovu	APOCYANACEAE
57.	Santatum album	Sandal Wood	SENTALACEACE
58.	Swetinia mahagony	Mahagony Tree	MELINACEAE
59.	Azadiirehelia indica	Neem Tree	OXLIACEAE
60.	Melia azadirehta	Hucchu Beevu	OXLIACEAE
61.	Lawsoniaenermis	Henna	LYTHRACEAE
62.	Sapendussaponaria	Soap Nut	SAPINDACEAE
63.	Pongmia glabra	Honge	PEPLIONATE
64.	Dalbargia sissoo	Sisham Tree	PEPLIONATE
65.	Allamanda catherlica	Allamande	APOCYANACEAE
66.	Anthocaphaluscadamba	Cadamnba Tree	PUBIACEAE
67.	Sygiziumcumini	Nerale	MYSTACEAE
68.	Schefflera arboricola	Umbrella Tree	ARALIACEAE

*Rajaw*  
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69.	Tethoniadiversifola	Tree Marigold	COMPOSITAE
70.	Kigoliapionata	Sausage Tree	BIGNINIACEAE
71.	Delonia regia	Gulmohr	CAESALPINAE
72.	Nyelanthesarbor tristis	Parijata	OLEACEAE
73.	Pinus rouxburgie	Pine Tree	PENACEAE
74.	Malphigiaglobora	Barbodos Cherry	MALPHIGIACEAE
75.	Dalbergia latifolia	Rose Wood	PAPILIONATAE
76.	Butea frondosa	Flame of Forest	PAPILIONATAE
77.	Saraca indica	Ashoka Tree	CAESALPINAE
78.	Polyalthea longifolia	False Ashoka Tree	ANNONACEAE
79.	Eucalyptus indica	Neelagiri	MYSTACEAE
80.	Jacaron da mimosifolia	Jacaranda	BIGNINIACEAE
81.	Plumaria alba	White Plumina	APOCYANACEA
82.	Plumaria rubra	Pink Flower	APOCYANACEA
83.	Plumariapudica	Bridal Bouquet	APOCYANACEA
84.	Muntigiacalobura	Muntingia	TELIACEAE

  
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## Fauna

The fauna enumerations has been carried out in the campus is as follows:-

### The major groups

MAMMALS	AVES	ARTHROPODS	ANNELIDA	REPTILES
Bat	Crow	Ant	Earthworms	Lizard
Cat	Eagle	Butterflies		Snake
Dog	Myna	Cockroach		Chameleon
Monkey	Owl	Centipede		
Rat	Pigeon	Drosophila		
Squirrel	Parrot	Housefly		
	Sparrow	Honeybee		
	Woodpecker	Millipede		
	Peacocks	Spiders		
	Tailor bird	Termites		
	King fisher			

The Biodiversity / Green Audit of Sahyadri Science college, Shivamogga has abundance in flora and fauna. A total of 2000+ species of herbs, shrubs, ornamental plants and trees are identified by me and along with Eco-club members and Gardener is highly appreciated and many are highly medicinal in nature. The campus is a good dwelling place for many birds and few fauna.

*Raj - a. d.*  
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## Waste Management

In nature we go behind many kinds of waste but in institutions, household and as well as public places we come across different kinds of solid waste, viz. Household waste, plastic waste, hotel waste, E –waste and few organic waste dumped road side has led to various environmental crisis that is reflected in lack of respect towards nature. For this reason, SCC has adopted various solutions by implementing educational strategies that may help us in managing the waste to their organizing structures. Therefore it is not only about creating awareness in the college through education but it has to be transformed to the society in order to contribute for the improvement of quality life and environment of the people.

### Solid waste generation and recycling over view

SCC has adopted 3 R's-Reduce, Reuse, and Recycle. And it generates a total waste of about 6.5tonnes/year approximately, of which 50% is organic in nature. Generally waste comes from cafeteria. & the paper waste generated is about 34% which is sent for recycling. The other waste such as the municipal solid waste is very minimal and a very less e-waste is generated in the campus.

### List of the following Waste generated in the Institution (College Campus)

SL.NO	TYPES OF WASTE	QUANTITY (Approximate.)
1.	Organic Waste from Cafeteria	192 Kgs/month
2.	Paper Waste	184 Kgs/month
3.	Plastic Waste	3.45 Kgs/month
4.	e-Waste	3.3 Kgs/month
5.	Hazardous Waste	2.3 Kgs/month
6.	Litter Waste from Garden area	75.5 Kgs/month
7.	Sanitary Waste	45.5 Kgs /month
8.	Miscellaneous Wastes	35 Kgs/month

### Installation of waste bins

To ensure waste free campus to collect, sufficient numbers of waste bins are installed in the campus for appropriate collection on all the floors. Most of the organic waste generated for the cafeteria is sent to municipal waste collector.

Non hazardous solid waste is disposed through garbage truck on daily basis.

### Campus sweep and cleaning

Sweeping is usually done every day by the stake holders in the process of campus cleaning which has not only helped in cleaning the campus and also in maintaining a clean and hygienic environment. In addition to this NSS and ECO CLUB members involve in cleaning the campus during weekends along with this the faculty, staff and students of each department help in cleaning the respective departments during Ayudha pooja festival.

### E-waste

E-waste generated in the campus is collected by the Department of Computer Science and disposed using standard procedures in association with e-recyclers.

### Red waste

Red waste (Sanitary napkins) in the campus and Hostel is disposed off using the Sanitary Napkin Destroyer installed at Girls hostel by grant from The Rotary Foundation of Rotary international.

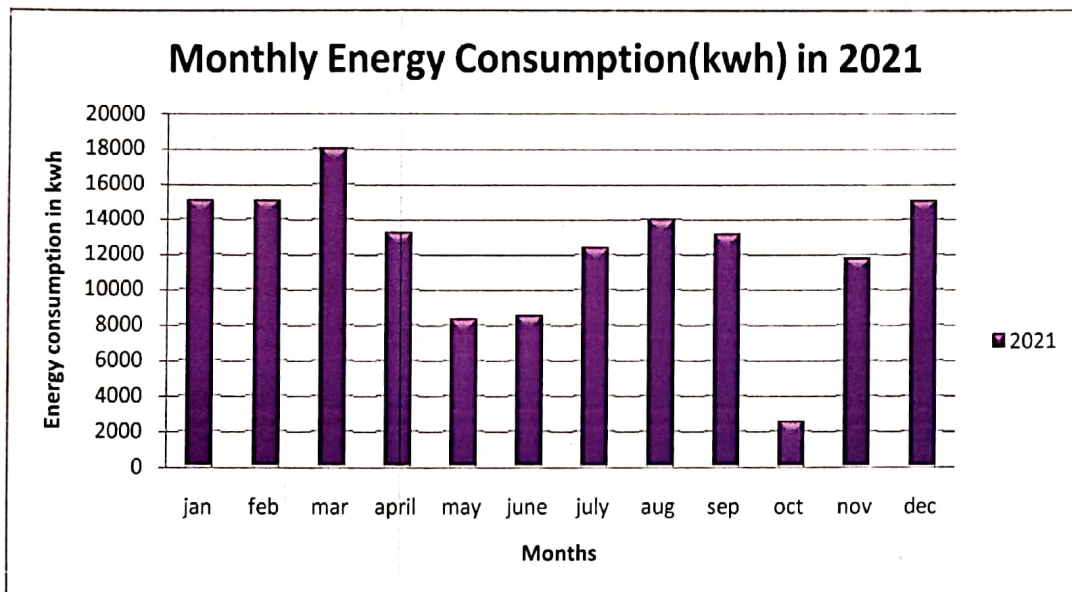


Sanitary Napkin Destroyer

*Principals*  
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# Energy Conservation

Minimal consumption of energy is the saving factor of energy conservation in the campus. The notices near the switch boards prevent wastage of energy. The use of LED bulbs instead of tungsten lamps has reduced the energy consumption. The team and collaborative work in the same place, using open auditorium, class room, office room and conference room for conducting college functions which are installed with LED bulbs to reduced the energy consumption. And the stake holders have been educated about the danger of natural resources depletion and the need for energy conservation.



**Graph: Changes in Monthly Consumption of Energy (kWh) in 2021.**

From the above Graph it indicates that the total energy consumption was 147687 in 2021. SCC building has Source of electricity from MESCOM Ltd and monthly energy consumption in current year was about 12000- 12500kWh averagely and used to pay monthly bill around Rs.148000-155000 averagely.76% of lightings is by LED of the total lighting system in the campus. So the college decided to go for eco-friendly technology in a sustainable way to install a solar roof top PV system of 20-35 KWp GRID in the campus in future to reduce the monthly bill by around 30-35% nearly.

## Water and Waste Water Management: Overview

We have only 3% of fresh water on the earth. So it's a resource of more importance to all living organisms including humans. So we have to conserve the water which is limited resource. In urban areas the lake beds and catchments area have been converted to layouts and apartment complexes; this has disturbed the urban hydrological balance. The problem becomes acute when there is no effort to recharge the ground water on one hand and the unrestricted exploitation of ground water by all. **"A Candle burning at both ends"**.

The urban terrain is mostly covered by roads and concrete houses, with very little possibility of rain water percolating into the ground. The slit choked storm water drains are unable to handle the inflow of rain water, this lead to water logging on the roads due to heavy rains which damages the surface of the roads, which calls for expensive resurfacing every year.

**"Uncertain rain is common, certain rain is rare. We have to be ready to harvest it whenever, wherever and whatever it rains"**

In conserving water educational institutions have a major role to play in minimising water wastage and also in educating students, faculty and staff about the issues of water conservation.

**Water usage-** there are 16 water storage units fixed on the terrace of the institution.

Capacity of the tanks as follows:-

**Cement underground tanks - 2 numbers each with a capacity of 10000L.**

Sintex tanks

1. 2000L - 06 Numbers
2. 1000L - 10 Numbers

These tanks are meant to supply water to designated wings of the college in different floors respectively.

### **Waste –water**

Waste water refers to the water discarded after use from the campus. Waste water includes sewerage from the college which includes lavatory, laboratories wash, staff room

wash basin, canteen and other coming out of apparatus and ultimately going down the drain. There is a good drainage system well linked to the sewerage lane of the UGD of local Municipality. If any blockages are found occasionally it is attended by the respective authorities concerned.

### **Safe Drinking Water**

Water is one of the main reasons of many infectious diseases. To check this, the students and staff are provided with safe drinking water. RO water filters are fixed at various spots in the college.

  
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## Efforts for Carbon Neutrality

Proper measures have been taken to reduce carbon emission to keep the campus, pollution-free and uncontaminated. The city bus from various places have frequent connectivity to college is used by students and staff to avoid the use of individual vehicles. Car- pooling or share auto system is used by staff for transport and conveyance.

### Tree plantation

The institution has organized an Awareness program beyond the campus through Environment promotional activities on Plant saplings.




Plant saplings in the Campus

### Cotton Day

“Cotton Day”- every Wednesday, the students, staff and stakeholders wear cotton dresses.

We are open to all individuals and organizations to collaborate for strengthening the Environmental sustainability and eco-friendly technologies.

  
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