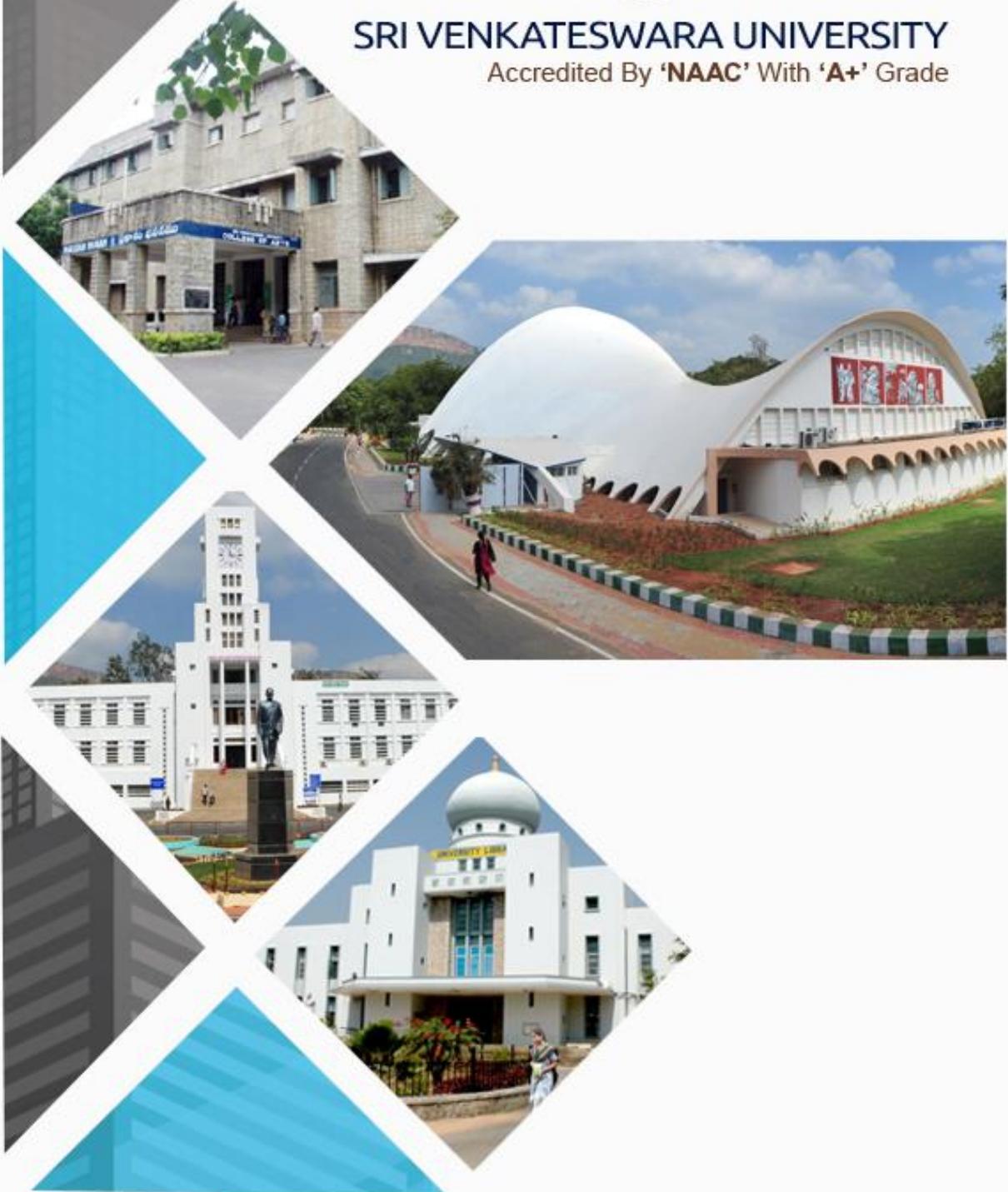




SRI VENKATESWARA UNIVERSITY

Accredited By 'NAAC' With 'A+' Grade



7.1.6 QUALITY AUDITS ON ENVIRONMENT AND ENERGY ARE REGULARLY UNDERTAKEN BY THE INSTITUTION AND ANY AWARDS RECEIVED FOR SUCH GREEN CAMPUS INITIATIVES



CRITERION-7

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7.1.6. Quality audits on environment and energy are regularly undertaken by the Institution and any awards received for such green campus initiatives:

1. Green audit
2. Energy audit
3. Environment audit
4. Clean and green campus recognitions / awards
5. Beyond the campus environmental promotion activities

GREEN AUDIT

INTRODUCTION

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of various establishments. It aims to analyze environmental practices within and outside of the concerned sites, which will have an impact on the eco- friendly ambience. Green audit can be a useful tool for the Institution to determine how and where they are using the most energy or water and other resources; the Institution can then consider how to implement changes and make savings. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of Green impact on campus.

If self-enquiry is a natural and necessary out-growth of a quality education, it could also be stated that institutional self-enquiry is a natural and necessary outgrowth of a quality educational institution. Thus it is imperative that the college evaluate its own contributions toward a sustainable future. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent.

The rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institutes which will lead for sustainable development and at the same time reduce a sizable amount of atmospheric carbon-di-oxide from the environment. The National Assessment and Accreditation Council, New Delhi [NAAC] has made it mandatory that all Higher Educational Institutions should submit an annual Green Audit. Moreover, it is part of Corporate Social Responsibility of the Higher

Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures.

OBJECTIVES

In recent times, the Green Audit of an institution has been becoming a paramount important for self-assessment of the institution which reflects the role of the institution in mitigating the present environmental problems. The Institution has been putting efforts to keep campus environment clean since its inception, The purpose of the present Green Audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:-

1. Layout of the University plan
2. Improving Environmental standards
3. Reduction and Reuse of Resources
4. Environmental Education through Curriculum
5. Developing Environmental Ethics and Value systems in Young minds

METHODOLOGY

The purpose of the Green audit of Sri Venkateswara University is to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The Methodology includes: Physical inspection of the campus, Observation and Review of the documentation, Interviewing key persons, Measurements and Recommendations.

FINDINGS OF GREEN AUDITING

The Institution has adopted the 'Green Campus' system for Environmental Conservation and Sustainability. There are main three pillars i.e. Zero environmental foot print, Positive impact on occupant health and performance and 100% graduates demonstrating environmental literacy. The goal is to reduce CO₂ emission, energy and water use, while creating atmosphere where students.

ENERGY AUDIT

According to Energy Conservation Act, 2001, Energy Audit is the verification, monitoring, and analysis of the use of energy including submission of a technical report containing recommendations for improving energy efficiency with cost-benefit analysis and an action plan to reduce energy consumption.

The Energy and Electricity audit aimed to cover the aggregate consumption within the campus including academic and administrative blocks. In different hostels, LPG cylinders are primarily used for cooking purposes and the number of uses was also counted. Domestic LPG connections were not included in the present study. Within the campus, no other fossil fuel like coal-fire or firewood, etc based energy is used.

All the buildings of the University are designed and constructed in such a way that during day time no electricity is consumed for lighting of tube lights and other electric lights. Proper daylight and ventilation facilities are available for every building.

ENVIRONMENT AUDIT

Programs have been undertaken by the Institute for plantation. The Green belt is also maintained to reduce the pollution level by decreasing the carbon dioxide level. Every year on June 5th World Environmental Day [WED] will be celebrating by inviting a special guest to elaborate impact of healthy environment on human life among students and staffs.

As a part of Curriculum, University has incorporated environmental related subjects to have environmental education.

Generated Solid wastes like waste papers, vegetables matter and miscellaneous ate systematically dumped into and earthen pit for natural decomposition instead of burning, thereby reduction in CO₂ has achieved.



भारत सरकार / Government of India

महात्मा गांधी राष्ट्रीय ग्रामीण शिक्षा परिषद / Mahatma Gandhi National Council of Rural Education

उच्चशिक्षाविभाग / Department of Higher Education

शिक्षामंत्रालय / Ministry of Education



District Green Champion Certificate

This is to certify that **SRI VENKATESWARA UNIVERSITY** is hereby recognized as **District Green Champion** for **Chittoor** District, Andhra Pradesh for the Academic Year 2021-22. The institution has successfully elevated the Swachhta Action Plan, adopted and implemented best practices in the areas of Sanitation, Hygiene, Waste Management, Water Management, Energy Management and Greenery Management.

Dr W G Prasanna Kumar
Chairman, MGNCRE

Ministry of Education, Government of India

तारीख / Date : 12.03.2022

ज्ञापनसंख्या / Memo no: MGNCRE/SAP22/10



Certificate

HYM International Certifications Pvt. Ltd.

Certified that the Quality Management System of

SRI VENKATESWARA UNIVERSITY

**Tirupati, Chittoor District - 517 502,
Andhra Pradesh, India**

has been assessed and found to be in accordance with the requirements of the quality standards

ISO 9001 : 2015

for the following scope of certification

PROVIDING EDUCATIONAL SERVICES

Further information about the scope of this certificate and applicability of ISO 9001 : 2015 requirements may be obtained by consulting the organization.

Issue Date : 18/08/2022

1st Surveillance 17/08/2023

Renewal Date : 17/08/2025

2nd Surveillance 17/08/2024



Authorised Signature

Certificate No : **Q91864142427**

HYM International Certifications Pvt. Ltd

NOTE: This Certificate is Valid From 18/08/2022 to 17/08/2023

This is an accredited certificate authorized for issue by Accreditation Service for Certifying Bodies [Europe] Limited who have assessed M/s. HYM International Certifications Pvt. Ltd. against defined criteria and in cognizance of ISO 17021:2015 "Conformity Assessment - Requirements for bodies providing audit and Certification of management Systems".

www.hymcertifications.com on for checking the validation of the Certification

Regd. Office : Plot No. 265/C, Addagutta Society, Opp. JNTU, Kukatpally, Hyderabad - 500 072, Telangana State, India.
E-mail: siva@hymcertifications.com, Website: www.hymcertifications.com



Certificate

HYM International Certifications Pvt. Ltd.

Certified that the Environmental Management System of

SRI VENKATESWARA UNIVERSITY

**Tirupati, Chittoor District - 517 502,
Andhra Pradesh, India**

has been assessed and found to be in accordance with the requirements of the environmental standards

ISO 14001 : 2015

for the following scope of certification

IMPLEMENTATION OF GREENERY AND ENVIRONMENTAL PROMOTION ACTIVITIES

Further information about the scope of this certificate and applicability of ISO 14001 : 2015 requirements may be obtained by consulting the organization.

Issue Date : 18/08/2022

1st Surveillance 17/08/2023

Renewal Date : 17/08/2025

2nd Surveillance 17/08/2024



Authorised Signature

Certificate No : **E91864140183**

HYM International Certifications Pvt. Ltd

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This is an accredited certificate authorized for issue by Accreditation Service for Certifying Bodies (Europe) Limited who have assessed M/s HYM International Certifications Pvt. Ltd. against defined criteria and in cognisance of ISO 17021:2015 "Conformity Assessment - Requirements for bodies providing audit and Certification of management Systems".

www.hymcertifications.com on for checking the validation of the Certification

Regd. Office : Plot No. 265/C, Addagutta Society, Opp. JNTU, Kukatpally, Hyderabad - 500 072, Telangana State, India.
E-mail: siva@hymcertifications.com, Website: www.hymcertifications.com



Certificate

HYM International Certifications Pvt. Ltd.

Certified that the Energy Management System of

SRI VENKATESWARA UNIVERSITY

Tirupati, Chittoor District - 517 502,
Andhra Pradesh, India

has been assessed and found to be in accordance with the requirements of the Energy standards

ISO 50001 : 2018

for the following scope of certification

IMPLEMENTATION OF ENERGY SAVING PRACTICES

Further information about the scope of this certificate and applicability of ISO 50001 : 2018 requirements may be obtained by consulting the organization.

Issue Date : 18/08/2022

1st Surveillance 17/08/2023

Renewal Date : 17/08/2025

2nd Surveillance 17/08/2024



Authorised Signature

Certificate No : **En9186414086**

HYM International Certifications Pvt. Ltd

NOTE: This Certificate is Valid From 18/08/2022 to 17/08/2023

This is an accredited certificate authorized for issue by Accreditation Service for Certifying Bodies (Europe) Limited who have assessed M/s. HYM International Certifications Pvt. Ltd. against defined criteria and in cognizance of ISO 17021:2015 "Conformity Assessment - Requirements for bodies providing audit and Certification of management Systems".

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E-mail: siva@hymcertifications.com, Website: www.hymcertifications.com



Certificate

HYM International Certifications Pvt. Ltd.

Certified that the Gender Sensitization Of Compliance

SRI VENKATESWARA UNIVERSITY

**Tirupati, Chittoor District - 517 502,
Andhra Pradesh, India**

has been assessed and found to be in accordance with the requirements of the Gender Sensitization Of Compliance

GENDER SENSITIZATION AUDIT

for the following scope of certification

**SPECIFIC FACILITIES PROVIDED FOR WOMEN IN TERMS OF
SAFETY AND SECURITY, COUNSELING, COMMON ROOMS**

Further information about the scope of this certificate and applicability Of Gender Sensitization Certification Of Compliance requirements may be obtained by consulting the organization.

Issued Certificate Date : 18/08/2022

Certificate Renewal Date : 17/08/2023



GSA



Authorised Signature

HYM International Certifications Pvt. Ltd

Certificate No : **G9186414010**

This is an accredited certificate authorized for issue by Accreditation Service for Certifying Bodies (Europe) Limited who have assessed H.Y.M International Certifications Pvt. Ltd. against defined criteria and in cognisance of ISO 17021:2015 "Conformity Assessment - Requirements for bodies providing audit and Certification of management Systems".

www.hymcertifications.com on for checking validate of the Certification

Regd. Office : Plot No. 265/C, Addagutta Society, Opp. JNTU, Kukatpally, Hyderabad - 500 072, Telangana State, India.
E-mail: hym@hymcertifications.com, Website: www.hymcertifications.com

7.1.6 Quality Audits On Environment And Energy Are Regularly Undertaken By The Institution And Any Awards Received For Such Green Campus Initiatives

Introduction

Green Audit, a Tool for Environmental Protection and Conservation

The modernization and industrialization are the two important outputs of twentieth century which have made human life more luxurious and comfortable. Simultaneously, they are responsible for voracious use of natural resources, exploitation of forests and wildlife, producing massive solid waste, polluting the scarce and sacred water resources and finally making our mother Earth ugly and inhospitable. Today, people are getting more familiar to the global issues like global warming, greenhouse effect, ozone depletion and climate change etc. Now, it is considered as a final call by mother Earth to walk on the path of sustainable development. The time has come to wake up, unite and combat together for sustainable environment.

Considering the present environmental problems of pollution and excess use of natural resources, Hon. Prime Minister, Shri. Narendra Modi has declared the Mission of Swachh Bharat Abhiyan. Also, University Grants Commission has mentioned “Green Campus, Clean Campus” mission mandatory for all higher educational institutes. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent.

Green Audit is the most efficient ecological tool to solve such environmental problems. It is a process of regular identification, quantification, documenting, reporting and monitoring of environmentally important components in a specified area. Through this process the regular environmental activities are monitored within and outside of the concerned sites which have direct and indirect impact on surroundings. Green audit can be one of the initiative for such institutes to account their energy, water resource use as well as wastewater, solid waste, E-waste, hazardous waste generation. Green Audit process can play an important role in promotion of environmental awareness and sensitization about resource use. It can create consciousness towards ecological values and ethics. Through green audit one can get direction about how to improve the condition of environment.

Need of Green auditing:

Green auditing is the process of identifying and determining whether institutions practices are eco-friendly and sustainable. Traditionally, we are good and efficient users of natural resources. But over the period of time excess use of resources like energy, water, chemicals are become habitual for everyone especially, in common areas. Now, it is necessary to check whether our processes are consuming more than required resources? Whether we are handling waste carefully? Green audit regulates all such practices and gives an efficient way of natural resource utilization. In the era of climate change and

resource depletion it is necessary to verify the processes and convert it into green and clean one. Green audit provides an approach for it. It also increases overall consciousness among the people working in institution towards an environment.

Goals of Green audit:

University has conducted a green audit with specific goals as:

- Identification and documentation of green practices followed by university.
- Identify strength and weakness in green practices.
- Conduct a survey to know the ground reality about green practices.
- Analyze and suggest solution for problems identified from survey.
- Assess facility of different types of waste management.
- Increase environmental awareness throughout campus.
- Identify and assess environmental risk.
- Motivates staff for optimized sustainable use of available resources.
- The long-term goal of the environmental audit program is to collect baseline data of environmental parameters and resolve environmental issue before they become problem.

Students are the major strength of any academic institution. Practicing green actions in any educational institution will inculcate the good habit of caring natural resources in students. Many environmental activities like plantation and nurturing saplings and trees, Cleanliness drives, Rain water harvesting, etc. will make the students good citizen of the country. Through Green Audit, higher educational institutions can ensure that they contribute towards the reduction of Global warming through Carbon Footprint reduction measures.

Benefits of Green Audit to an Educational Institute:

There are many advantages of green audit to an Educational Institute:

- It would help to protect the environment in and around the campus.
- Recognize the cost saving methods through waste minimization and energy conservation.
- Find out the prevailing and forthcoming complications.
- Empower the organization to frame a better environmental performance.
- It portrays good image of institution through its clean and green campus.

Sri Venkateswara University, Tirupati, Andhra Pradesh at a Glance:

Sri Venkateswara University established in 1954, to cater to the educational needs and aspirations of people of Rayalaseema Region of Andhra Pradesh. After completing 68 years of excellence in teaching, research, extension and outreach activities, the University is

committed to cater to the needs of higher education offering a full range of post-graduate programs in Arts, Sciences, Law, Management, Education, Physical Education, Engineering and Pharmacy disciplines. From a humble beginning of one College with six departments, the University has now grown into the second largest University in Andhra Pradesh having four constituent Colleges viz. College of Arts, College of Sciences, College of Commerce, Management & Computer Science and College of Engineering accommodating 54 departments offering 88 programs.

The University has made rapid strides in the field of higher education and research and is adjudged as one of the best Universities in the country and got **ACCREDITED A+**

GRADE BY NAAC-2017.

Various prestigious rankings and Academic credits in the year 2019-2020.

QS India Rankings-2020	: 44
NIRF University category	: 38
THE Young University Rankings-2020	: 101-150
Education world Rankings 2020	: 23
THE world University Rankings-2021	:801-1000
Citations(Normalized) for 2014-2019	:16.321
PhDs awarded	: 217 FT + 129 PT
Patents filed	: 3
Total research projects on going	: 34
Total amount	: Rs.53.14,94,271
Consultancy projects	: 629
Money generated through consultancy	: Rs. 766965/-

The University is selected under RUSA component 4 for Rs.100 crore. Under this program Centres of Excellence in (i)Nano & Micro Satellite (ii) Earth & Atmospheric Sciences (iii)Material Sciences (iv)VLP Technologies (v) Herbal Drug Development (vi) Psycho & Bio Sciences (viii) Water Resources and (ix) Bio Energy. University is having National facilities (UGC-SVU centre for MST Radar Applications) of repute and selected under Centre for Potential of Excellence in a particular area(CPEPA) by UGC, New Delhi and awarded and with Centres for Advanced Study (UGC-CAS). University was awarded based on research output DST-PURSE program.

Several departments have received Special Assistance Programmes (SAP) of UGC, New Delhi and also received fund under FIST program of DST, New Delhi to improve infrastructural facilities. Most of the faculties have obtained research grants from various national funding agencies like UGC, DST, DBT, CSIR, ICMR, ICSSR, BRNS, ISRO, MNES, MoES, MoEF and DRDO and foreign financing such as UNESCO, UK-DFID, ICRISAT, European Commission Programme ERASMUS MUNDUS. Utilizing these impressive funding, the faculty of the University have proactively interacted with Industry, Academic and Research Institutes in National and International level and entered into

collaborative research agreements through MoUs (Memorandum of Understanding) to conduct research work in frontier areas of national & International importance.

The students belonging to socially and economically backward communities and those who are economically poor get State and Central Government Welfare Scholarships. Fellowships and Scholarships are offered to research students of the campus by the University and also by the UGC, CSIR, DAE, ICMR, ISRO, ICAR, ICPR, ICHR, ICSSR, DST, DRDO, SRNS and Rashtriya Sanskrit Sansthan.

The University central library is the major resource centre that provides information for research students and faculty. It provides unlimited access to the UGC INFONET e-resources and e-journals through UGC INFONET Digital Library Consortium. The library is kept open from 8.00 am till 10.00 pm on all working days and from 10.00 am to 5.00 pm on Sundays and public holidays besides the addition of latest books related to both teaching and research in the main library, most of the departments have developed departmental libraries by utilizing the grant from the University or from special assistance received from funding agencies like UGC, DST, etc. A Digital Library for PhD Theses submitted to the University has been designed using DSpace, an Open Source Software developed by HP and MIT, USA. 3,000 PhD Theses have been digitalized and uploaded to the Shodhganga database. This gives easy access to the PhD theses and research documents.

The University provides residential facilities to research scholars, Post-Doctoral fellows and other researchers in the hostels specially earmarked for them on the campus. Summer fellows, research associates, visiting scientists and faculty researchers from other universities and academics are provided accommodation in the university guest house and Academic Staff college guest house. The university campus is completely Wi-fi connected. The university provides computer and uninterrupted internet facilities for research students, fellows as well as faculty on the campus in all the blocks and laboratories. Direct internet facility and common internet hubs are set-ups near the hostels and quarters on the campus to provide internet access free of cost.

To further enhance the status of the University to compete with the top University at National and Global level through continued development during 2019-2020, additional Buildings for E-Class Rooms, Establishment of Incubation Centres, On-line Examination System/expansion of Laboratories to meet the requirements of new Courses are in the pipeline. Besides meeting the infrastructure facilities of office, Separate Hostels for Boys and Girls, Cultural Centre and world Class Gymnasium and Sports facilities are being created. International Students Canteen, Digital Library, Wi-Fi Connectivity, Networking, Smart Campus, Air-Conditioned Auditorium, Development of Greenery and State of the modern art furniture in classrooms, faculty rooms, offices, Guest House and Auditorium are under progress.

Sri Venkateswara University Map

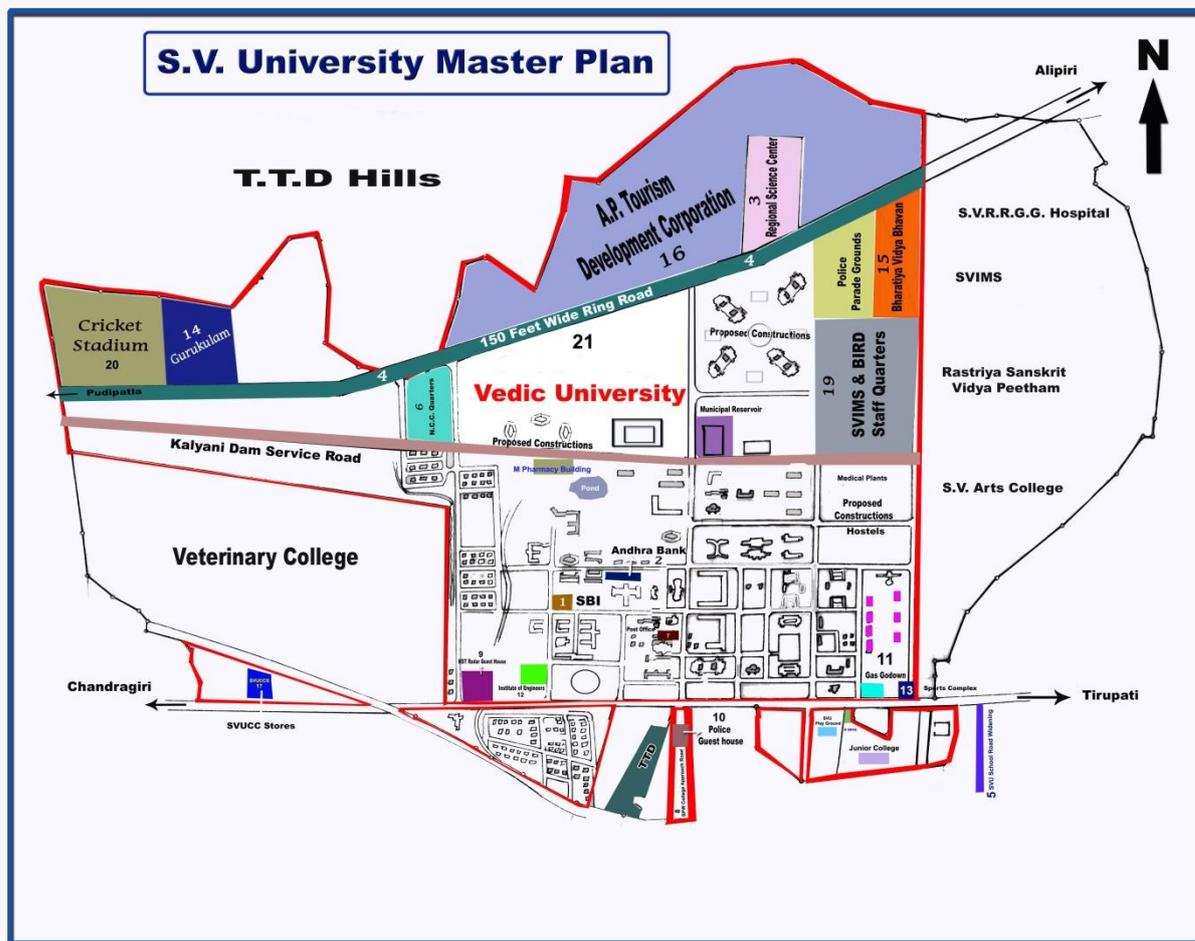


Fig .1: Sri Venkateswara University Master Plan

Objectives of Green audit:

The main objective of Green Audit at Sri Venkateswara University is to make a complete assessment of the environmental indicators in the campus and make recommendations for implementation in the campus for better environmental management. To make a complete assessment of the environmental indicators in the campus and make recommendations for implementation in the campus for better environmental management.

1. To assess the quality of the water and recycling of waste water in the university campus
2. Estimation of energy & fuel usage and evaluating the carbon foot print of the university on a full attendance day
3. Evaluation of the measures implemented by university in reducing the Carbon Footprint
4. To monitor the generation of solid waste and adopting strategies for its recycling

5. To evaluate the biodiversity of flora and fauna of the campus and providing a database for corrective actions and future plans.

Water and Wastewater Audit

Water which is precious natural national resource available with fixed quantum. The availability of water is decreasing due to increasing population of nation, as per capita availability of utilizable water is going down. Due to ever rising standard of living of people, industrialization, urbanization, demand of fresh water is increasing day by day. The unabated discharge of industrial effluent in the available water bodies is reducing the quality of these ample sources of water continuously. Hence, the national mission on water conservation was declared by the then Hon. Prime Minister Narendra Modi as 'Jal Shakti Abhiyan' and appealed to all citizens to collectively address the problem of water shortage, by conserving every drop of water and suggested for conducting water audit for all sectors of water use.

Water audit can be defined as a qualitative and quantitative analysis of water consumption to identify means of reducing, reusing and recycling of water. Water Audit is nothing but an effective measure for minimizing losses, optimizing various uses and thus, enabling considerable conservation of water in irrigation sector, domestic, power and industrial as well. A water audit is a technique or method which makes possible to identify ways of conserving water by determining any inefficiencies in the system of water distribution. The measurement of water losses due to different uses in the system or any utility is essential to implement water conservation measures in such an establishment.

Importance of Water audit

It is observed that a number of factors like climate, culture, food habits, work and working conditions, level and type of development, and physiology to determine the requirement of water. The community which has a population between 20,000 to 1,00,000 requires 100 to 150 liters per person (capita) per day. The communities with a population can consume over 1, 00,000 requires 150 to 200 liters per person (capita) per day. As per the standards provided by WHO Regional office for South East Asia Schools require 2 liters per student; 10-15 liters per student if water-flushed toilets.

Water usage can be defined as water used for all activities which are carried out on campus from different water sources. This includes usage in all residential halls, academic buildings, on campus and on grounds. Wastewater is referred as the water which is transported off the campus. The wastewater includes sewage, hostel and residential water used in cooking, showering, clothes washing as well as waste water from chemical and biological laboratories which ultimately going down in sink or drainage system.

University water resources

The Main water uses in the campus includes drinking, cleaning, toilets and gardening. The University campus has continuous water supply of 24/7 through AP Government Telugu

Ganga project. In addition there are 10 numbers of water bore wells in Men and Women Hostels, Engineering college campus and university gardens. The campus has several water harvesting units to recharge ground water. The water requirement is calculated based on per person utility per day. Toilet usage -20 lts, Shower -20 lts, clothes washing- 20 lts, utensil washing – 10 lts, mopping and washing rooms– 10 lts, cooking – 5 litres, drinking -2.5 lts and gardening – 30 lts.



Fig. 2: Bore well



Fig. 3: Open well

Rain Water Harvesting

Rainwater harvesting means capturing rain where it falls or capturing the run off of rain water in Sri Venkateswara University premises. Rainwater harvesting system, also called rainwater collection system or rainwater catchment system, technology that collects and stores

rainwater for further use. The collected water is also kept clean by filtering and such design of facility that does not allow pollutants to mix with collected water. Rain water is harvested from terrace, and ground floor areas for reusing in watering of lawns. Surface runoff from various ground sources and terraces are collected, filtered and recirculated for gardening and washing purpose. Besides natural percolation tanks, concrete storage tanks have also been built and rain water has been stored after proper filtration paving the open places with concrete roads is avoided so that rain water can be percolated. The rainwater harvested during rains not only helps to save water from conventional sources, but also to save energy and reduce expenses incurred on transportation and distribution of water. Awareness programmes on water conservation and rain water harvesting have been conducted regularly through various service of the University. One of the rain water harvesting pit is seen near Post Office. Similar structures are seen at different locations within premises.



Fig 4: Rain water Harvestng Pit



Fig. 5: Rain Water Harvesting



Fig. 6a.: Rain Water Harvesting at Academic Building



Fig. 6b.: Rain Water Harvesting at Academic Building



Fig. 6c.: Rain Water Harvesting at Academic Building

Reusage of waste water:

Wastewater recycling is considered as the best option of water usage. The waste water generated is filtered through coarse filter system and is used for watering outdoor lawns, gardens, potted plants, cleaning of stair case, verandas, pavements and drive ways.



Fig. 7.: Reusage of Waste water

Energy Audit:

Energy is one of the major inputs for the economic development of any country. The fundamental goal of energy management is to produce goods and provide services with the least cost and least environmental effect. Also it can be said as “the strategy of adjusting and optimizing energy, using system and procedure so as to reduce energy requirements per unit of output while holding constant or reducing total costs of producing the output from these systems”. The energy audit is key to a systematic approach for decision making in the area of energy management. It attempt to balance the total energy inputs with its use, and serve to identify all the energy streams in a facility.

According to Energy Conservation Act, 2001, Energy Audit is the verification, monitoring, and analysis of the use of energy including submission of a technical report containing recommendations for improving energy efficiency with cost-benefit analysis and an action planto reduce energy consumption.

Energy resources utilized by all the departments, support services and the administrative buildings of Sri Venkateswara University, Tirupati, Andhra Pradesh campus include electricity and liquid petroleum. Major use of the energy is at office, canteen, hostel and laboratories, for lighting, transportation, cooking and workshop instruments. Sri Venkateswara University has installed solar power plant having a capacity of 1.75 MW. Electricity is also supplied to the University campus by Andhra Pradesh Southern power Distribution Company Limited (APSPDCL).



Fig 8: Solar Panel at SVU Administrative Building



Fig. 9 Solar Panel at SVU Library



Fig 10 :Solar Panel at Prakasam Bhavan



Fig. 11: Solar Panel at Engineering College



Fig. 12: Solar Panel at SVU Hostels

In Academics and Research, Solar dryer facility is available in the Department of Home Science. Food technology students and scholars conducted research projects using solar dehydration technology. Drying foods using solar energy helps in retaining the colour, Flavour and nutritional value to a large extent. It can minimize cost, wastage and increase the productivity in terms of quality and quantity. Hands on training was given to the students with the resource persons on solar dehydration. Various foods and food products were developed. The students undergone training programmes and internship in Society for Energy, Environment and Development (SEED) Hyderabad.

Solar dryers require a certain investment for the set-up of the appliance, but no expenditures for the fuel. The basic function of a solar dryer is to heat air to a constant temperature with solar energy, which facilitates extraction of humidity from foods inside a drying chamber. Ventilation is enabled at a constant rate through defined air inlets and outlets, small solar ventilators or temperature difference, either due to exposition or vertical height. In direct sun driers the food is put in boxes with a transparent lid. Additionally, the temperature in the drier is raised due to the greenhouse effect and the air exchange is regulated by vents. The food is not exposed to direct sunlight in indirect sun driers as the fresh air is heated separately from the food chamber. This method is preferable for drying

foods which lose nutritional value when exposed to direct sunlight. Hybrid driers combine solar energy with a fossil fuel or biomass fuel. Solar drying has many advantages over open traditional drying like; Safe & hygienic, Free from insect and bird contamination, Clean & dust free products, more uniform quality products, Uniform color, texture, and appearance of the product, evenness in drying, moisture control to optimum levels, Nutrient retention especially beta carotene, yields high quality Products with better shelf life of the products.



Fig. 13: Solar Drying Facility in the Department of Home Science



Fig. 14: Solar Drying by the students of Food Technology

Solar energy generated by solar panels are exported to the grid of electricity distribution utility of Southern Power distribution company of Andhra Pradesh Ltd. Direct savings in electricity bills are availed from electricity distribution utility on monthly basis. Workshops on ‘Green Power Technology in Power Grid: Issues, Challenges and Control’ was taken place in the university.



Fig. 15: “Green Power Technology in Power Grid: Issues, Challenges and Control”

The Energy and electricity audit aimed to cover the aggregate consumption of Electrical and Natural gas energy within the Sri Venkateswara University campus including academic and administrative blocks. In different hostels, LPG cylinders are primarily used for cooking purposes and the number of uses was also counted. Domestic LPG connections were not included in the present study. Within the campus, no other fossil fuel like coal-fire or firewood, etc based energy is used.

All the buildings of the University are designed and constructed in such a way that during daytime no electricity is consumed for lighting of tube lights and other electric lights. Proper day light and ventilation facilities are available for every building.



Fig. 16: ISO 50001 : 2018 Certificate for Implementation of Energy Saving Practices

Fossil fuels (such as petrol, diesel) contribute significantly to environmental pollution through emission of greenhouse gases into the atmosphere mainly as carbon dioxide. Vehicular emission is the main source of carbon emission in the campus, hence to document the various means of transportation that is practiced by the university members is important.

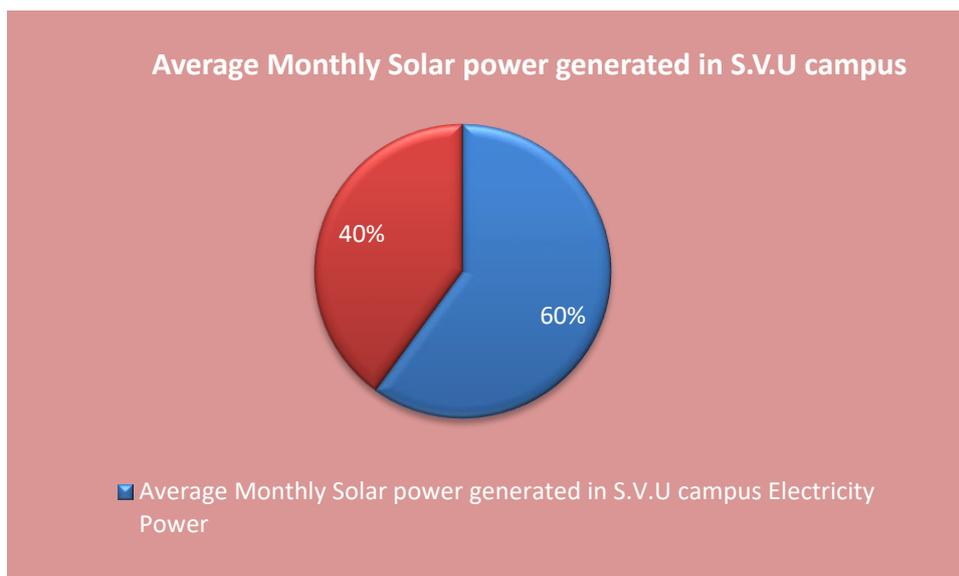


Fig 16: Monthly Solar power generated within S.V.U campus

Fossil fuels (such as petrol, diesel) contribute significantly to environmental pollution through emission of greenhouse gases into the atmosphere mainly as carbon dioxide. Vehicular emission is the main source of carbon emission in the campus, hence to document the various means of transportation that is practiced by the university members is important. The fuel energy audit determines the approximate use of petrol or diesel by the vehicles inside the university. It also includes the efforts taken by the university to conserve the fuel. The conventional source of fuel for the vehicle is petrol and diesel. Maximum students, teaching and non teaching staff of university and visitors use two wheeler and four wheeler vehicles. So, the data regarding fuel utilization for students, teaching and non teaching staff of university and visitor are monitored in the study.

Carbon Foot Print Analysis

Total number of students on the campus	- 4
Total number of regular faculty	- 206
Total number of Academic Consultants	- 239
Total number of non-teaching staff	- 900
Total number of 2 wheelers used	- 1147
Total number of electrical 2 wheelers	- 41
Total number of 4 wheelers used	- 154
Number of electrical four wheelers	- 04
Average consumption of fuel per month	
By two wheelers	- 458 lts
By four wheelers	- 135 lts

Total consumption of fuel per year – 7116lts

Awareness programmes on effects of CO₂ emission are conducted to encourage usage of electric bikes and cars to reduce on campus air pollution.

Solid Waste Audit

Solid waste is the unwanted or useless solid material generated from the human activities in residential, industrial or commercial area. Solid waste management reduces or eliminates the adverse impact on the environment and human health. A number of processes are involved in efficiently managing waste for an organization. It is necessary to manage the solid waste properly to reduce the load on waste management system. Unavailability of proper waste management practices may lead to environmental pollution. A waste management audit helps educational institutes to efficiently and responsibly dispose of the waste that is generated every day. By designing a more efficient waste disposal program through a waste audit, we can enhance recycling practices

Solid waste generation and its management is a burning issue in current days. The rate of generation of solid waste is very high and yet we do not have adequate technology to manage the generated waste. Unscientific handling of solid waste can create threats to public health and environmental safety issues. Thus, it is necessary to manage the solid waste properly to reduce the load on waste management system. The purpose of this audit is to find out the quantity, volume, type and current management practice of solid waste generation in Sri Venkateswara University campus. This report will help for further solid waste management and to go for green campus development. The waste generated from Sri Venkateswara University campus includes paper waste, plastic waste, biodegradable waste, construction waste, glass waste, biomedical waste and other wastes.

Table No. 1: Category wise solid waste generation at University (kg / month)

Category of waste	Paper waste	Plastic waste	Biodegradable waste	Construction waste	Glass waste	Other waste	Total waste kg/month	Total waste kg/year
Quantity	784	75	2985	123	23	132	4122	49464
percentage	19.02	01.82	72.41	02.98	00.55	03.20	100	



Fig. 17: Graph - Solid waste generation at university campus
Solid Waste Management

Waste is collected and segregated properly. Solid waste is divided into two categories: dry waste and wet waste. Wet waste consist of bio-degradable materials, Dry waste consist of bio-degradable and non-biodegradable materials. Students, faculty, and staff are aware and educated on proper waste management practices of recycling and disposal of plastic waste, paper waste and food waste. Solid and liquid residual waste generated in men and women hostels has been effectively disposed. SV University generated income of Rs.3.0 lakhs/ year through solid and liquid residual waste disposal and also Rs.67.0 lakhs generated by selling paper.

In the University campus premises, Blue and Green covered/ pedal-pushed dustbins are placed for waste collection. Waste bins are provided on each floor, in staff rooms, laboratories, washrooms, kitchen and in campus area. The waste materials like glass, metals, wrappers, papers, plastics, old newspapers, used papers like journal files and workshop scrap etc, are given for recycling to external agencies, where they are segregated and disposed/recycled according to the nature of the waste.

University strictly follows the guidelines regarding plastic usage and has prohibited the use of single use plastic such as carry-bags, glasses, spoons etc, in the campus. As per the College guidelines, Canteen Contractors are prohibited to use plastic cutlery, instead paperplates and wooden spoons are used. The waste from the canteens and other areas are channeled into a reservoir where they are treated biologically before the water goes out into river bodies. Metal scrap is segregated separately and sent for recycling units.



Fig 18: Say No to Plastic

The solvents used in the laboratories are reused after distillation to minimize the use of solvents. The waste solvents are separated as halogenated and non-halogenated and transferred to plastic containers. To prevent heat generation and gas evolution or other reaction, compatibility of the waste is checked carefully.

To prevent accidental spillage of chemicals the laboratory wastes are subjected to process through three stages of waste management. Stage-I gravel, Stage-II sand, Stage –III coal. The three chambers are replenished with new materials after a period of six months.

There is a separate room for the Nuclear Laboratory where radiation hazard is displayed for safety measures. The harmful radiations are radiated by appropriate routes. Containers containing radioactive elements are properly leadsealed.

Wearing appropriate lab coats, gloves and face shields while working with nanomaterials. The hazardous chemical wastes are kept in separate containers. Later they are filtered and drained out.

Biodegradable waste consists of Leaf litter, food waste, vegetable and fruit waste etc. is decomposed in composting, vermicomposting and **bio-gas units** established in the University campus



Fig 19: Biogas Plant

Other dry waste is collected by Waste collection vehicles of Tirupati Municipal Corporation. Overall University campus is maintained neat and clean throughout. Various awareness programmes were organized in and around campus for effective management of solid waste.

Table-2: Awareness programme on solid waste management in rural areas (10 villages) of Tirupati, Andhra Pradesh.

S.No.	Name of the village (Location)	Date of event conducted	Number of persons attended	Composition of Trainees	Composition of Project Team	Subject of Programme	Number of beneficiaries
1.	Thondavada	14.05.2022	150	People of Thondavada including Harijanawada (Both Men and Women of different ages from 18years to 70 years)	Prof. G. Madhavi and S. Kiranmai	Solid waste management	150
				PHC workers	M. Venu	Elimination of single use plastics	
				SWPC workers	NCC,NSS students	Medical waste awareness	
				Sachivalayam staff	S. Anitha Devi	Sanitary waste awareness	
2.	Peruru	25.05.2022	130	People of Peruru .Both Men and Women of different ages from 21years to 75 years)	Prof. G. Madhavi and P.G.Students of M.Sc Environmental Chemistry, S.V.University	Solid waste management	130
				PHC workers	M.Venu and Research Scholars of Chemistry	Elimination of single use plastics	
				Anganvadi workers	S. Kiranmai, NCC,NSS, Chemistry students	Medical waste awareness	
				Sachivalayam staff	S. Anitha Devi	Sanitary waste awareness	
3.	Thummalagunta	05.06.2022	250	People of Thummalagunta , of different ages from 21years to 75 years)	Prof. G. Madhavi and P.G.Students of M.Sc Environmental Chemistry, Prof. K.V Saritha, Dept of Biotechnology S.V.University	Solid waste management	250
				PHC workers,	M.Venu and Prof. Uma Maheswar Reddy, Dept.of ECE.	Elimination of single use plastics	

				Anganvadi staff	S. Kiranmai, Prof.M.R.Bhaskar Reddy, Dept.of Geography	Medical waste awareness	
				Sachivalayam staff	S. Anitha Devi, NCC,NSS, Chemistry students	Sanitary waste awareness	
4.	Avilala	18.06.2022	120	People of Avilala. Both Men and Women of different ages from 21years to 75 years)	Prof. G. Madhavi and P.G.Students of M.Sc Environmental Chemistry, S.V.University	Solid waste management	120
				PHC workers	M.Venu and Research Scholars of Chemistry,	Elimination of single use plastics	
				Anganvadi workers	S. Kiranmai, NSS students	Medical waste awareness	
				Sachivalayam staff	S. Anitha Devi, students of B.P.Ed	Sanitary waste awareness	
5.	Tiruchanuru-I	25.06.2022	250	People of Avilala. Both Men and Women of different ages from 21years to 75 years)	Prof. G. Madhavi and P.G.Students of M.Sc Environmental Chemistry, S.V.University	Solid waste management	250
				PHC workers, Municipality workers	M.Venu and Research Scholars of Chemistry	Elimination of single use plastics	
				SWPC workers	S. Kiranmai, NCC&NSS students	Medical waste awareness	
				Sachivalayam staff	S. Anitha Devi	Sanitary waste awareness	
	Tiruchanuru-II (Yogimallavaram)	30.06.2022	96	People of Avilala. Both Men and Women of different ages from 21years to 75 years)	Prof. G. Madhavi and P.G.Students of M.Sc Environmental Chemistry, S.V.University	Solid waste management	96
				PHC workers	M.Venu and Research Scholars of Chemistry	Elimination of single use plastics	
				SWPC workers	S. Kiranmai, students of B.P.Ed	Medical waste awareness	
				Sachivalayam staff	S. Anitha Devi, NCC&NSS	Sanitary waste awareness	

					students		
6.	For NCC & NSS Students of S.V.University	12.05.2022	41	NCC	Prof. Madhavi G.	Solid waste management, Medical waste awareness	103
			62	NSS	M.Venu, Kiranmai S.	Elimination of single use plastics	



Fig 20a: Awareness Programme on Solid waste Management in rural areas around Tirupati



Fig 20 b: Awareness Programme on Solid waste Management in rural areas around Tirupati



Fig 20 c: Awareness Programme on Solid waste Management in rural areas around Tirupati

VERMICOMPOST



Fig 21: Vermicomposting

E-waste generation and management on university campus:

Generation of e-waste is apparent in every educational institute. Especially, at the university level where there are several equipments and instruments used for administrative as well as for scientific execution. Computers, Printers and Xerox machines are must for the administrative and research work. The wires required for the connectivity also gets included in the e-waste. More usage of these electronics well as electrical materials generates huge amount of e-waste. Similarly, various scientific equipments and instruments get worn out with time. These too contribute to the e- waste.

E-waste include monitor, CPU, key board, electric wire, printer. Paperless work increase load on computer and therefore it is a need to reduce e-waste by repairing all these electric equipment. There is a need to reuse and recycling of electronic equipments and material. E-waste is collected and stored in University campus and sent to authorised vendor for recycling/ disposal under buy-back policy.



Fig 22: E-waste collection

Biodiversity Audit

Carbon is the basis of life on mother Earth. It is incorporated into the plants through photosynthesis, consumed by animal species through the food, present in the form of carbon dioxide (CO_2) in the atmosphere, locked into the rocks as limestone and compressed into the different fossil fuels such as coal and oil. As CO_2 level in the atmosphere continue to increase, most climate designs or project that the oceans of the world and trees will keep soaking up more than half CO_2 . The plants on land and in the sea, taken up carbon by over many years increased the percentage discharged during decay, and this increased carbon became locked away as fossil fuels beneath the surface of the planet.

The starting of the 21st century brought growing concern about global warming, climate change, food security, poverty and population growth. In the 21st century more carbon has been released into the atmosphere than that has been absorbed. CO_2 is a principle component causing global warming. Atmospheric carbon dioxide levels have increased to 40 % from preindustrial levels to more than 390 parts per million CO_2 . On this background it is a need of time to cover the research areas interrelated with climate change.

The “Carbon Sequestration and Green cover inventory” is a current status of tree cover and vegetation carbon storage assessment of area under Sri Venkateswara University campus. In an era of climate change and global warming carbon emission, carbon footprints, carbon sequestration, adaptations, mitigation are the keywords in academia. Carbon sequestration is a process of converting atmospheric carbon i.e. CO_2 into other sinks of carbon such as vegetation, soil, oceanetc. in various forms to mitigate global warming audit is one of the important clauses of Kyoto Protocol.

While transforming ourselves from regional university to global university it is a responsibility of such universities to face the global future challenges and try to find out possible solutions for them. It is a social and environmental responsibility of Government Institutes, Universities, National and International Organizations to respond positively for various global issues at local level and should percolate the generated knowledge in to the society. Global warming and climate change are current environmental issues need to be addressed scientifically and efficiently. As Universities are provided with skillful human resource supported by analytical infrastructure, it is our duty to bring such ideas in practice. While understanding the call of time the Department

of Botany and Environmental Science, Sri Venkateswara University has decided to enumerate the greencover of Sri Venkateswara University campus.

Around 100 M.Sc. Environmental Science and Botany students were involved in the field survey. Team of 4 students was made and one sector was allocated to a team. A team is provided with a measuring tape, chalks, writing pad and tree census form. A tree with girth (circumference of tree) more than 10 cm at chest level and height more than 4 feet were considered as tree and taken for enumeration. Girth of each tree was measured with the help of tape and approximate height by visual method. Identification of tree species was done with the help of field guides, web source and with the help of Taxonomist of Department of Botany of Sri Venkateswara University.

Table -3: List of plant species on Sri Venkateswara University Campus

S. NO	COMMON NAME	BOTANICAL NAME	TYPE/ USE
1	Custard Apple	<i>Annona squamosa</i> L. (Var.name:seethapalam)	Fruit yielding, Medicinal
2	False ashoka	<i>Polyalthia longifolia</i> (Sonner) Thw. (Naramamidi) -60	Wind breaker
3	False ashoka	<i>Polyalthia longifolia</i> Hook. & Thom. Var. pendula (Ontikomma naraamamidi) -51	Wind breaker
4	Snuff-Box Tree	<i>Oncoba spinosa</i> Forsk. (Line gulabi) - 01	Medicinal
5	Red silk-Cotton tree	<i>Bombax ceiba</i> L. (Buruga) -03	Fibre yielding
6	Buddha's coconut tree	<i>Sterculia alata</i> -01	
7	Bael	<i>Agle marmelos</i> (L.) Corr. (Maredu) - 01	Medicinal
8	Tree of heaven	<i>Ailanthus excelsa</i> Roxb. (Pedda vepa) -01	Matchstick industry
9	Neem tree	<i>Azadirachta indica</i> A. Juss. (Vepa) - 150	Medicinal
10	Indian mahogany	<i>Chukraia tabularis</i> A. Juss. (Konda vepa) -01	Medicinal
11	Indian rose wood	<i>Somyda febrifuga</i> (Roxb.) A. Juss.	Medicinal, Wood

		(Somi) -02	yielding
12	Ceylon satinwood or East Indian satinwood	<i>Chloroxylon swietenia</i> DC. (Billudu) -08	Wood yielding
13	Ceylon Tea	<i>Cassine glauca</i> (Rottb.) Kuntz. (Neridi) -06	Medicinal
14	Indian jujube	<i>Ziziphus mauritiana</i> Lam. (Regi chettu) -18 1)	Fruit yielding
15	Kath Ber	<i>Ziziphus xylopyrus</i> (Retz.,) Willd. (Gotti) -03	Medicinal
16	Notched Leaf Soapnut	<i>Sapindus emarginatus</i> Vahl. (Kunkudu) -08	Medicinal
17	Mango	<i>Mangifera indica</i> L. (Mamidi) -04	Fruit yielding
18	Indian ash tree	<i>Lannea coromandelica</i> (Houtt.) Mann. (Gumpana) -60	Plywood making
19	Flame-of-the-forest	<i>Butea monosperma</i> (Lam.) Taub. (Modhuga) -02	Medicinal
20	Indian rosewood	<i>Dalbergia latifolia</i> Roxb. (Iridi) -02	Wood yielding
21	Mexican Lilac	<i>Gliricidia sepium</i> (Jacq.) Kunth ex Walp. (Seema kanuga) -10	Rat poison
22	Indian beech and Pongame oiltree.	<i>Pongamia pinnata</i> (L.) Pier. (Kanuga) -136	Medicinal , Biodiesel preparation
23	Malabar kino	<i>Pterocarpus marsupium</i> Roxb. (Yegi) -02	Medicinal
24	Red Sanders	<i>Pterocarpus santalinus</i> L.f. (Errachandhanam) -16	Medicinal, Wood yielding
25	Orchid Tree	<i>Bauhinia purpurea</i> L. (Deva kanchanam) -02	Medicinal
26	Bidi leaf tree	<i>Bauhinia recemosa</i> Lam. (Ari chettu)	Medicinal

		-01	
27	Red cassia, Ceylon senna	<i>Cassia roxburghii</i> DC. (Rela) -54	Medicinal
28	Siamese cassia	<i>Cassia siamea</i> L. (Seema thangedu) - 33	Medicinal
29	Royal Poinciana	<i>Delonix regia</i> (Boj. Ex Hook.) Rafin. (Thurai) -12	Ornamental
30	Yellow Flame/ Copper pod	<i>Peltophorum pterocarpum</i> (DC.) Baker ex Heyne. (Konda chintha) - 272	Ornamental
31	Tamarind	<i>Tamarindus indica</i> L. (Chintha) -59	Cuisines , Medicinal
32	Auri,	<i>Acacia auriculiformis</i> A. Cunn. ex Benth. (Australia thumma) -02	Ornamental
33	White-bark acacia	<i>Acacia leucophloea</i> (Roxb.) Willd. (Thella thumma) -02	Wood
34	Lebbeck /Woman's tongue tree	<i>Albizia lebbeck</i> (L.) Benth. (Bagichettu) -16	Forage , Wood
35	Jumbay, white leadtree,	<i>Leucaena latisiliqua</i> (L.) Gillis. (Subabulu) -07	Multipurpose tree
36	Badminton ball tree	<i>Parkia biglandulosa</i> Wt.& Arn. (Banthi thumma) -02	Ornamental
37	Manila Tamarind	<i>Pithecellobium dulce</i> (Roxb.) Benth. (Cheema chintha) -01	Food, Traditional medicine
38	Chilean mesquite	<i>Prosopis chilensis</i> (Molina) Stuntz. (Sarkar thumma) -01	Shade tree
39	Rain tree	<i>Samanea saman</i> (Jacq.) Merr. J. Wash. (Nidraganneru) -19	Shade tree
40	Arjuna/ Arjun tree	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wt. & Arn. (Tellamaddhi) -16	Silk production (Tassar)

41	Baheda	<i>Terminalia bellirica</i> (Gaertn.) Roxb. (Thandra) -02	Medicinal
42	Indian almond	<i>Terminalia catappa</i> L. (Badam chettu) -02	Food/ wood/ Ornamental
43	Southern blue gum	<i>Eucalyptus globulus</i> Labill. (Neelagiri thylam) -52	Essential oil/ Wood
44	Common guava	<i>Psidium guajava</i> L. (Jama chettu) -01	Food, Traditional medicine
45	Jamun	<i>Syzygium cumini</i> (L.) Skeels. (Neredu chettu) -60	Food medicine
46	Gummy Gardenia	<i>Gardenia gummifera</i> L.f. (Bikki) -02	Medicinal
47	West Indian jasmine	<i>Ixora acuminata</i> Roxb. (Tella ramabanam) -02	Ornamental
48	Aal or Indian mulberry	<i>Morinda pubescens</i> J.E. Smith var. pubecens Verdc. (Maddi) -56	Dye yielding
49	Torch tree	<i>Ixora pavetta</i> Andr. (Korivi chettu) -03	Ornamental
50	Madhūka,	<i>Madhuca longifolia</i> (Koen.) Macbr. Var. <i>latifolia</i> (Roxb.) A. Cheval. (Ippa) -08	Silk production (tassar) and medicinal
51	Sapodilla	<i>Manilkara zapota</i> (L.) P. Royen. (Sapota) -01	Fruit yielding
52	Spanish cherry	<i>Mimusops elengi</i> L. (Pogada) -05	Medicinal
53	Caterpillar tree	<i>Plumeria alba</i> L. (Tella devaganneru) -08	Ornamental, Medicinal
54	Pinwheel flower,	<i>Tabernaemontana divaricata</i> L. (Nandivardhanam) -02	Ornamental, Medicinal
55	Small Pinwheel flower	<i>Ervatamia divaricata</i> (L.) Burkill (Sanna nandivardhanamu) -02	Ornamental, Medicinal

56	Sweet Indrajao	<i>Wrightia tinctoria</i> (Roxb.) R. Br. (Reppala) -28	Dye yielding, Medicinal
57	Yellow oleander	<i>Cascabela thevetia</i> (L.) Lipp. (Patcha ganneru) -04	Poisonous
58	Indian Cherry	<i>Cordia dichotoma</i> Forst. (Iriki) -01	Traditional medicine
59	Geiger tree	<i>Cordia sebestena</i> L. -01	Ornamental
60	Wavy trumpet flower	<i>Dolichandrone atrovirens</i> (Roth) Spr. (Oddi) -02	Ornamental
61	Jacaranda, blue jacaranda	<i>Jacaranda acutifolia</i> Humb. & Bonpl. (Swarna sundari) -01	Ornamental, Wood
62	Sausage tree	<i>Kigelia africana</i> (Lam.) Benth. In Hook. (Enugu thondamu) -06	Poisonous
63	Tree jasmine or Indian cork tree	<i>Millingtonia hortensis</i> L.f. (Manu malli) -05	Ornamental
64	African tulip tree	<i>Spathodea companulata</i> P.Beauv. (Yerra neeru budda) -01	Ornamental
65	Silver Trumpet Tree	<i>Tebebuia argentea</i> (Bur. & K. Schum.) Britt. -03	Ornamental
66	Rosy trumpet tree	<i>Tebebuia rosea</i> (Bertol.) DC. -05	Ornamental
67	Yellow trumpetbush	<i>Tecoma stans</i> (L.) Kunth. (Pasupu ganneru) -01	Ornamental
68	Desert teak	<i>Tecomella undulata</i> (Sm.) Seem. -02	Wood yielding
69	Teak	<i>Tectona grandis</i> L.f. (Teku) -09	Wood yielding
70	Helicopter tree	<i>Gyrocarpus asiaticus</i> Willd. (Kummara poliki) -02	Ornamental
71	Great bougainvillea,	<i>Bougainvillea spectabilis</i> Willd. -03	Ornamental, Tribal medicine
72	Indian sandalwood	<i>Santalum albam</i> L. (Srigandhamu) -	Wood, Medicine

		02	
73	Indian gooseberry	<i>Phyllanthus emblica</i> L. (Nellikaya) - 07	Culinary, Traditional medicine
74	Indian elm	<i>Holoptelea integrifolia</i> (Roxb.) Planch. -09	Cheap wood, Medicinal
75	Banyan	<i>Ficus benghalensis</i> L. -44	Cultural significance
76	Sacred Fig	<i>Ficus religiosa</i> L. (Ravi chettu) -17	Traditional medicine
77	The common fig	<i>Ficus carica</i> L. (Atthi chettu) -01	Food, Folk medicine
78	Australian pine tree or whistling pine tree	<i>Casurina littorea</i> L. (Sarugudu) -02	Wood, Ornamental
79	Traveler's palm	<i>Ravenala madagascarensis</i> Sonner. (Panka arati) -01	Ornamental
80	Indian shot	<i>Canna indica</i> L. (Metta thamara) -02	Ornamental
81	Thorny bamboo	<i>Bambusa arundinacea</i> (Retz.) Roxb. (Veduru) -02	Wood for thatching
82	Toddy Palm	<i>Borassus flabellifer</i> L. (Tati chettu) - 01	Edible, Palm wine
83	Cuban royal palm	<i>Roystonea regia</i> (Kunth) O.F. Cook. - 20	Ornamental
84	Yellow Cane Palm	<i>Dyopsis lutescens</i> (H.W endl.) Beentje & J. Dransf. -14	Ornamental



Custard Apple



Indian mahogany



Indian ash tree



Flame-of-the-forest



Red cassia, Ceylon senna



Arjuna/ Arjun tree



Sweet Indrajao



Rosy trumpet tree



Silver Trumpet Tree



Geiger tree



Indian elm



Cycas beddomei



Couroupita guianensis (Cannonball tree)



Indian sandalwood

Fig. 22: Plant species on Sri Venkateswara University Campus

In ecology, the mass of living biological organism in a given area or ecosystem at a given time is called as biomass. Biomass can refer to species biomass and community biomass. The species biomass is the mass of one or more species. The community biomass, which is the mass of all species in the community. It includes microorganisms, plants or animals. The mass can be defined as the average mass per unit area, or as the total mass in the community.

To estimate the biomass of the each individual tree species non- destructive method was used. To calculate the circumference Diameter at Breast Height (DBH) can be determined by measuring tree Girth at Breast Height (GBH), approximately at 1.3 meter from the ground. The Girth at Breast Height of trees having diameter which greater than 10 centimeters were measured directly by measuring tape.

To maintain green cover and carbon sequestration potential of the University following precautionary measures were taken.

Plantation of endemic species like *Pterocarpus santalinus*, *Cycas beddomei*, *Boswellia ovalifoliata*, *Syzygium cumini* etc were planted to conserve native biodiversity. The plantation of tree species like *Acacia nilotica subsp. indica*, *Albizia lebbek*,

Azadirachta indica, *Citrus aurantium* works as green belt which can maintain the ecological balance in the environment as well as act as sink for the harmful gases and improve air quality. Plantation activity is taken every year to increase the green cover on the University campus. Avoided the plantation of exotic species like *Casuarina*, which is fast growing species with less ecological values. Sri Venkateswara University received : ISO 14001: 2015 certificate for Implementation of Greenary and Environmental Promotion Activities



Fig. 23: ISO 14001: 2015 Implementation of Greenary And Environmental Promotion Activities

India has large geographical size and variety of climate and habitats. Wild animals constitute great national resources. Preservation and protection of wildlife is important from the ecological point of view. As per the UNESCO's Man and Biosphere program, the government of India has established the Seshachalam Biosphere Reserve on 20th September,

2010. The reserve is the first biosphere reserve in Andhra Pradesh and the 17th in India. By size, it is the 9th largest in India.

Sri Venkateswara University is located at foot hills of Tirumala of Seshachalam hill range a Biosphere reserve spread over in area of 480 acres with lush green campus possessing more than ten thousand different kinds of plants. At North side of the campus are seven peaks of, Eastern Ghats namely Seshadri, Neeladri, Garudadri, Anjanadri, Vrushabadri, Narayanadri and Venkatadri. Being covered with hilly region and green luxurious coverage the Sri Venkateswara University harbours different species of birds, insects, reptiles, deers and rabbits etc. In addition to above plant species a diversified fauna has been observed and documented.

Students of department of Zoology involved in counting Bird population in the campus from 18 – 21, February, 2022. As part of the program 44 different species of birds observed and posted in eBird India web page.



Fig 24: Bird count in Sri Venkateswara University Campus

WhatsApp eBird India Checklist - 14 Feb 2021 x

ebird.org/india/checklist/S81292367

eBird India Submit Explore My eBird Science About News Help Create account Sign in Language

CHECKLIST S81292367

Sun 14 Feb 2021 6:48 AM

SV University, Tirupati Chittoor County, Andhra Pradesh, India

Raja Bandi

Traveling Complete

7 2 hr. 42 min 2.14 km

Submitted from eBird for Android, version 2.7.1.1

MEDIA POWERED BY MACAULAY LIBRARY

44 Species observed
+3 other taxa
209 individuals

16 Species with photos

2 Gray Junglefowl *Gallus sonneratii*
Calls heard

7 Rock Pigeon (Feral Pigeon) *Columba livia* (Feral Pigeon) *
BREEDING & BEHAVIOR CODE F Flyover (Observed)

5 Greater Coucal *Centropus sinensis*



16 Asian Koel *Eudynamis scolopacea*
Conservative count and very vocal. Majorly feeding on the fruiting fig trees.

2 Common Hawk-Cuckoo *Hierococcyx varius*
Typical "brain fever" calls heard

2 Little Swift *Apus affinis*
BREEDING & BEHAVIOR CODE F Flyover (Observed)

3 Asian Palm-Swift *Cypselurus bolesiensis*

2 Shikra *Accipiter badius*
Calls heard

31°C Partly sunny

13:48 29-08-2022

Fig 25: eBird India WEB PAGE

<https://ebird.org/india/checklist/S81292367>



Greater Coucal *Centropus sinensis*



Asian Koel *Eudynamys scolopaceus*



Common Hawk-Cuckoo *Hierococcyx varius*



White-throated **Kingfisher** *Halcyon smyrnensis*



Rose-ringed Parakeet *Psittacula krameri*



Common Tailorbird *Orthotomus sutorius*



Common Tailorbird *Orthotomus sutorius*



Black-headed Cuckooshrike *Lalage melanopectera*

DATA FOR: World

Change species Dwarf Koel Black-billed Koel

Cuculiformes > Cuculidae

Asian Koel

Eudynamis scolopaceus

SEEN PHOTO AUDIO YEAR

Sign in to see your badges



MALE © Renuka Vijayaraghavan eBird 537481855 Macaulay Library ML 60614251



+ 2

DATA FOR: World

Change species Dark Hawk-Cuckoo Northern Hawk-Cuckoo

Cuculiformes > Cuculidae

Common Hawk-Cuckoo

Hierococcyx varius

LC Least Concern

SEEN PHOTO AUDIO YEAR

Sign in to see your badges



ADULT © Marjan Lammerink eBird 530034759 Macaulay Library ML 59339291



+ 2

DATA FOR: [World](#)

[Change species](#) < [Dark-rumped Swift](#) | [House Swift](#) >

Caprimulgiformes > Apodidae

Little Swift

Apus affinis

LC Least Concern



SEEN PHOTO AUDIO YEAR

[Sign in](#) to see your badges



© Albin Jacob eBird 53096818 Macaulay Library ML 6791301

DATA FOR: [World](#)

[Change species](#) < [Chestnut-flanked Sparrowhawk](#) | [Nicobar Sparrowhawk](#) >

Accipitriformes > Accipitridae

Shikra

Accipiter badius

LC Least Concern



SEEN PHOTO AUDIO YEAR

[Sign in](#) to see your badges



ADULT © Rahul Singh eBird 540018346 Macaulay Library ML 118167741

DATA FOR: [World](#)

Change species [Chocolate-backed Kingfisher](#) [Brown-breasted Kingfisher](#)

Coraciiformes > Alcedinidae

White-throated Kingfisher

Halcyon smyrnensis

LC Least Concern

SEEN PHOTO AUDIO YEAR

[Sign in](#) to see your badges







© James (Jim) Holmes eBird S25127908 Macaulay Library ML 21103251

DATA FOR: [World](#)

Change species [Seychelles Parakeet](#) [Echo Parakeet](#)

Psittacoformes > Psittaculidae

Rose-ringed Parakeet

Psittacula krameri

LC Least Concern

SEEN PHOTO AUDIO YEAR

[Sign in](#) to see your badges



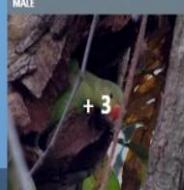

FEMALE



MALE



MALE



+ 3

MALE © Todd Pepper eBird S50810172 Macaulay Library ML 129962881

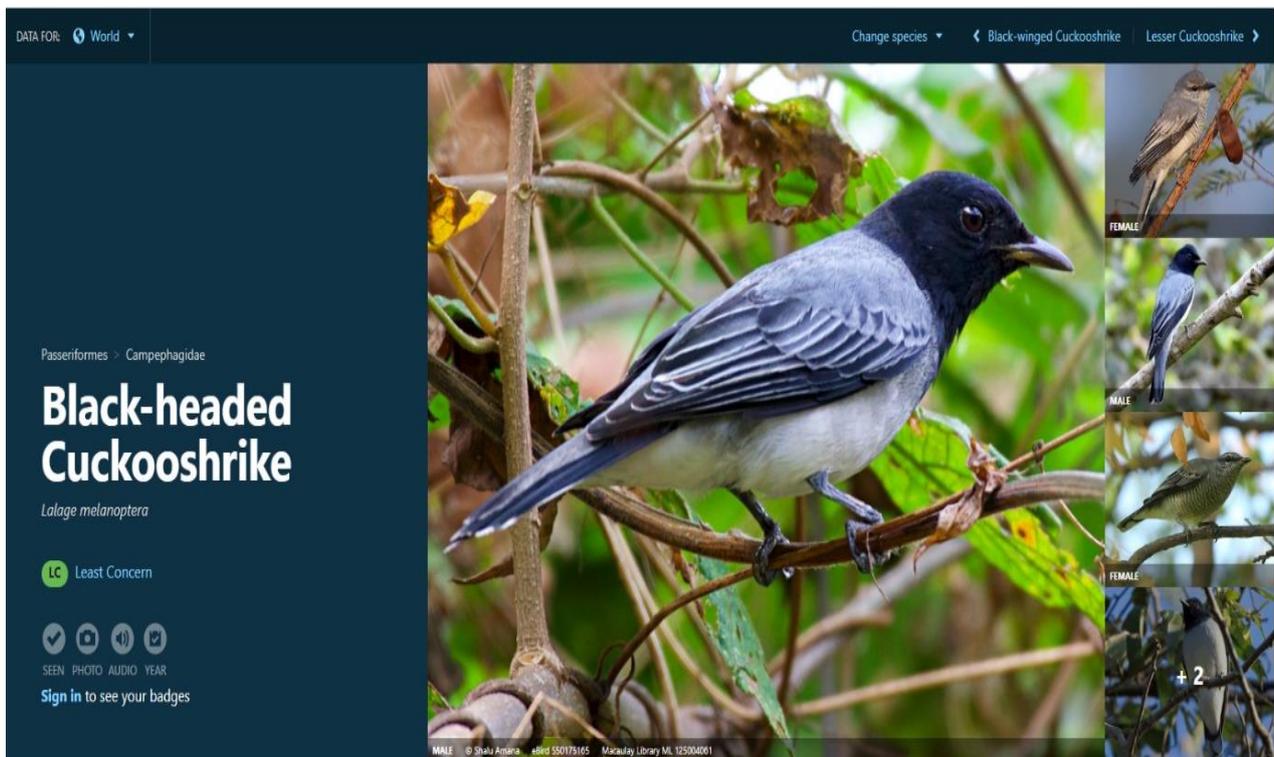
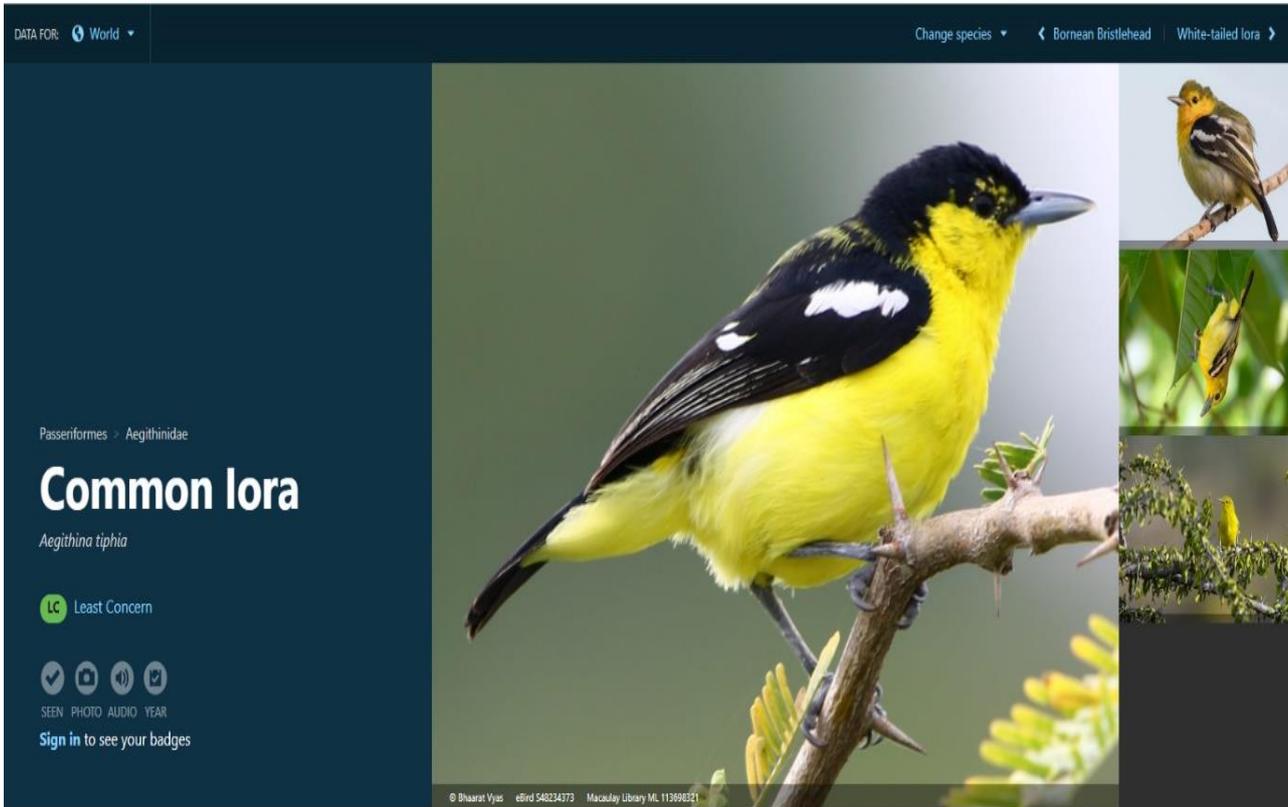


Fig 26: Birds at Sri Venkateswara University campus


 Prof. M. Srinivasulu Reddy
 Director
 NAAC Steering Committee
 Sri Venkateswara University
 Tirupati-517 502

ENERGY AUDIT

2018-2019



**Save the Planet, Protect the Future.
No Excuses for Inaction**

**SRI VENKATESWARA UNIVERSITY
TIRUPATI - 517502**

Energy Audit Report,2018-2019

1. **Name of the College** : Sri Venkateswara University
Tirupati, Andhra Pradesh- 517 502
2. **Campus area** : 483 acres
3. **Main campus** : 427650.8sq.mts.
4. **Date of establishment** : 2nd September, 1954

5. **Brief History:** Sri Venkateswara University a pioneer Institution of higher education, in the state of Andhra Pradesh located serenely in a picturesque campus at the foot of the seven hills of the Tirupati. It was established under Sri Venkateswara University Act No. XIV of 1954, and came into force on 2nd September, 1954.

The University affords a large number of subjects in Arts, Sciences, Commerce and Engineering streams with total of 52 Departments and 88 Programmes in the Undergraduate as well as Post Graduate Level. Sri Venkateswara University emerged as one of the most prestigious University in Rayalaseema region of Andhra Pradesh. Excellent University Central Library, which is fully automated and more than 3.9 lakhs of Books and 260Periodicals. Library has wide range of electronic databases, online resources, e-journals, e-shodhganga and online books. Departments also have separate Department libraries with good number of collection. Majority of Departments have Computer labs and University encourages Judicious use internet for efficientimplementation of the Teaching-Learning process. Online courses are conducted through the LMS-Jitsi.

University Campus has 1GBPS internet connectivity and more than 1500 students using the facility having link to National Knowledge Network (NKN) to provide smooth internet facility to access online learning materials. All the Infrastructural facilities are properly maintained by Engineering Departmental Staff and large amounts are being spent.

Energy Audit

Energy is one of the major inputs for the economic development of any country. The fundamental goal of energy management is to produce goods and provide services with the least cost and least environmental effect. Also it can be said as “the strategy of adjusting and optimizing energy, using system and procedure so as to reduce energy requirements per unit of output while holding constant or reducing total costs of producing the output from these systems”. The energy audit is key to a systematic approach for decision making in the area of energy management. It attempts to balance the total energy inputs with its use, and serve to identify all the energy streams in a facility.

According to Energy Conservation Act, 2001, Energy Audit is the verification, monitoring, and analysis of the use of energy including submission of a technical report containing recommendations for improving energy efficiency with cost-benefit analysis and an action plan to reduce energy consumption.

Energy resources utilized by all the departments, support services and the administrative buildings of Sri Venkateswara University, Tirupati, Andhra Pradesh campus include electricity and liquid petroleum. Major use of the energy is at office, canteen, hostel and laboratories, for lighting, transportation, cooking and workshop instruments. Sri Venkateswara University has installed solar power plant having a capacity of 1.75 MW. Electricity is also supplied to the University campus by Andhra Pradesh Southern Power Distribution Company Limited (APSPDCL).

Solar energy generated by solar panels are exported to the grid of electricity distribution utility of Southern Power distribution company of Andhra Pradesh Ltd. Direct savings in electricity bills are availed from electricity distribution utility on monthly basis.

The Energy and electricity audit aimed to cover the aggregate consumption of Electrical and Natural gas energy within the Sri Venkateswara University campus including academic and administrative blocks. In different hostels, LPG cylinders are primarily used for cooking purposes and the number of uses was also counted. Domestic LPG connections were not included in the present study. Within the campus, no other fossil fuel like coal-fire or fire wood, etc., based energy is used.

All the buildings of the University are designed and constructed in such a way that during daytime no electricity is consumed for lighting of tube lights and other electric lights. Proper day light and ventilation facilities are available for every building.

Fossil fuels (such as petrol, diesel) contribute significantly to environmental pollution through emission of greenhouse gases into the atmosphere mainly as carbon dioxide. Vehicular emissions are the main source

of carbon emission in the campus, hence to document the various means of transportation that is practiced by the university members is important.

Energy audit helps in energy pollution control, cost optimization, safety aspects and the methods to improve the operating and maintenance practices of the campus. University has come up with energy efficient technological equipment like installation of Solar Power Plant and usage of LED Bulbs in the University campus.

Energy Consumption Data:

The electricity supply for Sri Venkateswara University is provided by Andhra Pradesh Southern Power Distribution Company Limited (APSPDCL). The energy consumed by Sri Venkateswara University falls under Government Education category. The Contracted Demand is 152.94 KVA and the connected load is 130 KW. The energy consumption of the whole campus is facilitated through two substations having a total of 10 MVA with a total of 22 transformers with 350 KVA each.





C-Block Mens' Hostel



Union Bank-SVU Branch

The University also has a facility of two DG sets having a total capacity of 350 KVA. The DG set are mainly used for power failure from APSPDCL.

Sl.No.	DG Details	Make
1.	250KVA	Mahindra
2.	100KVA	Surya

The Campus also has several Solar Panel installed in some of the buildings. The details given below:

S.No.	Capacity	Building
1.	150 KWP	SV Engineering Colleges & SS
2.	400 KWP	Control Houses & Computer Centers
3.	450 KWP	Admin Building and C-Block Hostels
4.	500 KWP	Virology
5.	500 KWP	S V Engineering Colleges



Diesel Generator Near Day Care Center

ELECTRICTY CONSUMPTION IN SRI VENKATESWARA UNIVERSITY

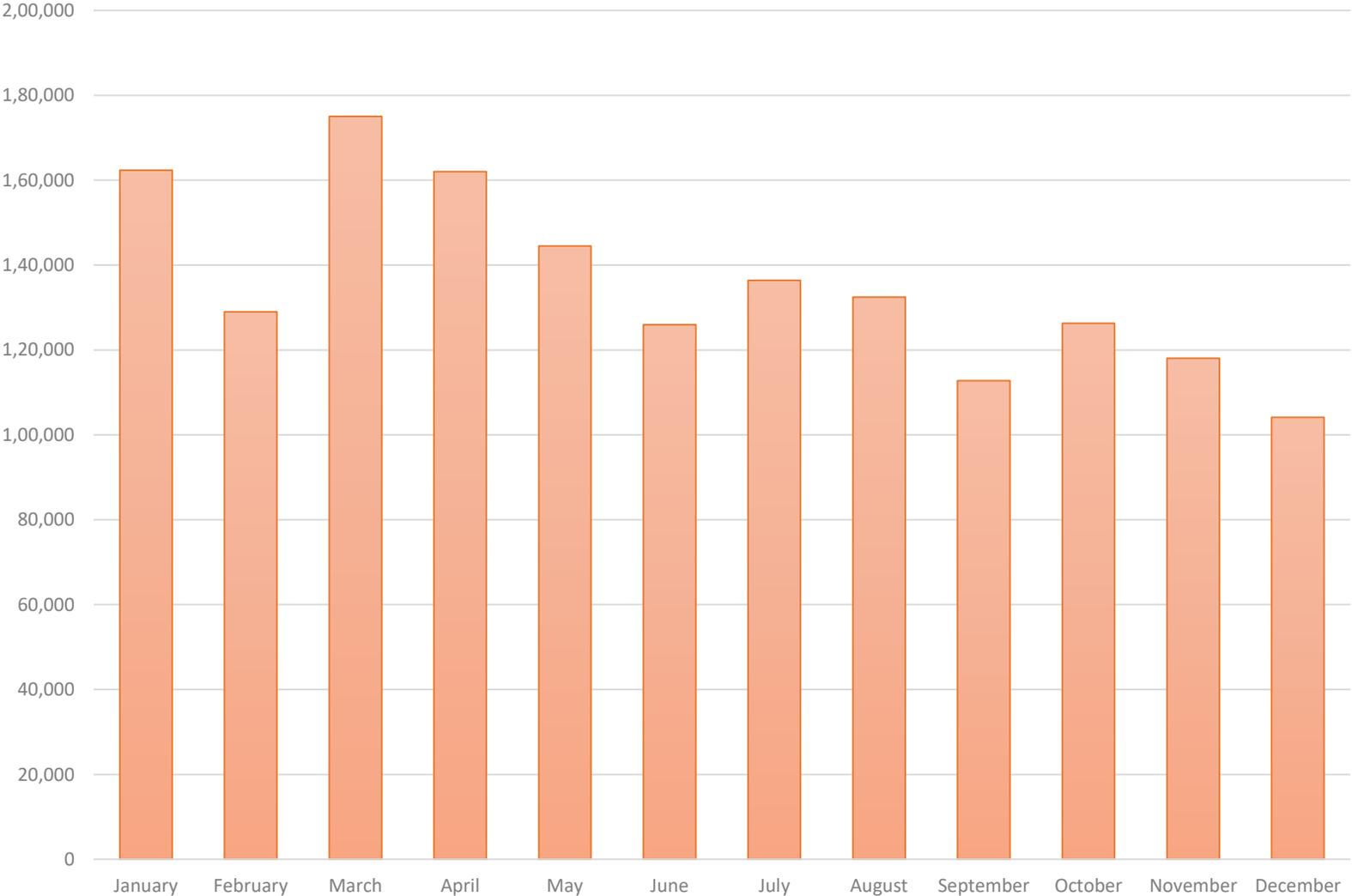
S. No.	Service No	Contracted Load (KVA)	Category & Voltage Level (KV)	Available Transformer Capacity (KVA)	Months	Year	Electricity Consumption	Bill Amount (RS.)
							Units	
1	(HT- 23,27,36,156,246, 301,529,2316) (LT- 174,175,176,292, 293,557232)	RYB- (Red, Yellow, Blue)	160/200/ 400	250/350	January	2018	1,65,706	16,40,489.4/-
2					February	2018	1,82,101	18,02,799.2/-
3					March	2018	1,91,145	18,92,335.5/-
4					April	2018	1,82,746	18,09,185.4/-
5					May	2018	1,70,707	16,89,999.3/-
6					June	2018	1,60,928	15,93,187.2/-
7					July	2018	1,49,736	14,82,386.4/-
8					August	2018	1,51,024	14,95,137.6/-
9					September	2018	1,78,258	17,64,754.2/-
10					October	2018	1,75,010	17,32,599/-
11					November	2018	1,54,119	15,25,778.1/-
12					December	2018	1,66,636	16,49,696.4/-
							Total Amount	2,00,78,347.7/ -

TOTAL ENERGY CONSUMPTION (KWh)-2018 JANUARY -DECEMBER

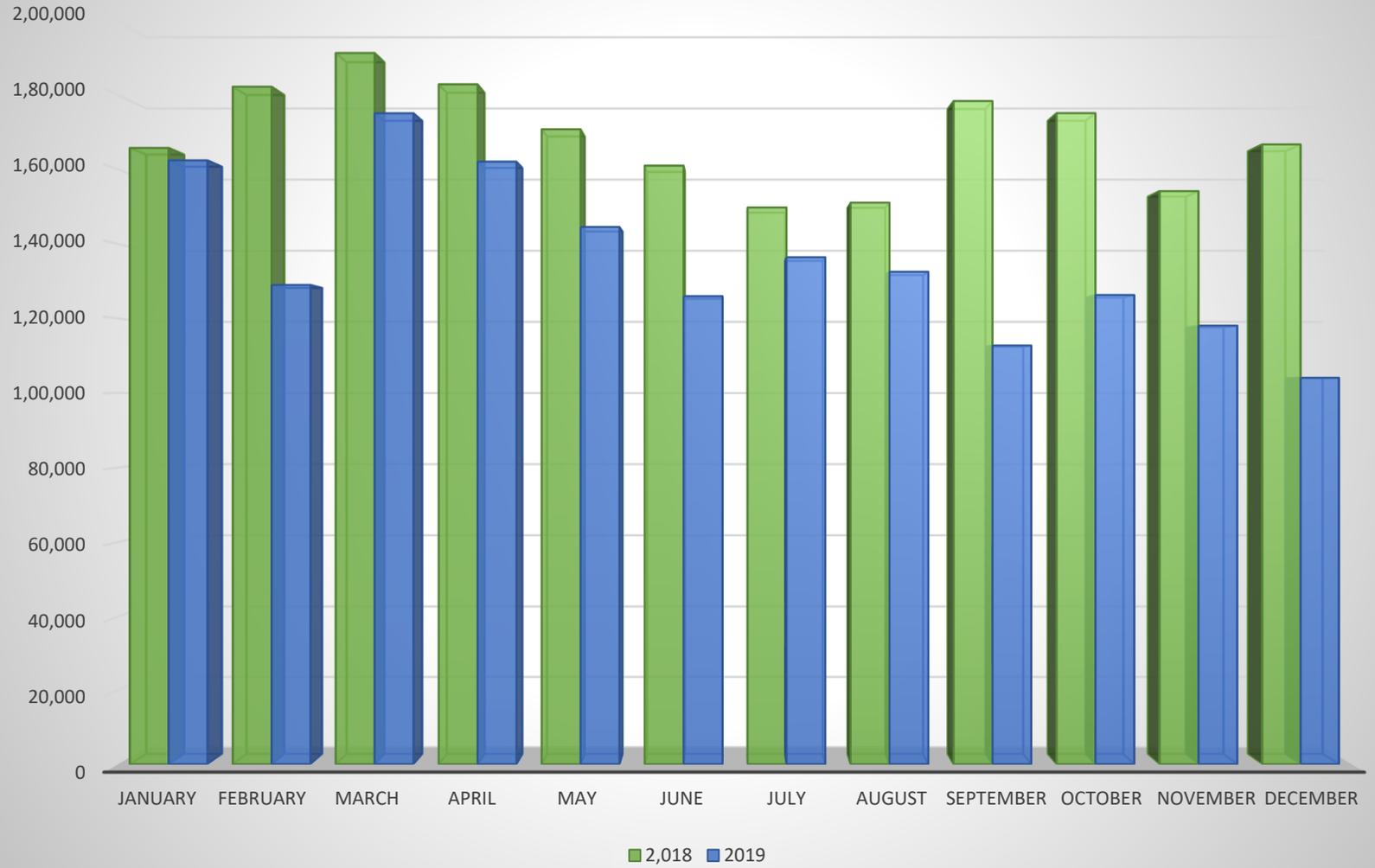


S. No.	Service No	Contracted Load (KVA)	Category & Voltage Level (KV)	Available Transformer Capacity (KVA)	Months	Year	Electricity Consumption	Bill Amount (RS.)
							Units	
1	(HT- 23,27,36,156,246, 301,529,2316) (LT- 174,175,176,292, 293,557232)	RYB- (Red, Yellow, Blue)	160/200/400	250/350	January	2019	1,62,362	16,07,383.8/-
2					February	2019	1,28,972	12,76,822.8/-
3					March	2019	1,74,999	17,32,490.1/-
4					April	2019	1,62,021	16,04,007.9/-
5					May	2019	1,44,517	14,30,718.3/-
6					June	2019	1,25,979	12,47,192.1/-
7					July	2019	1,36,400	13,50,360/-
8					August	2019	1,32,497	13,11,720.3/-
9					September	2019	1,12,748	11,16,205.2/-
10					October	2019	1,26,277	12,50,142.3/-
11					November	2019	1,18,060	11,68,794/-
12					December	2019	1,04,109	10,30,679.1/-
							Total Amount	1,61,26,515.9/-

TOTAL ENERGY CONSUMPTION (KWh)-2019 JANUARY -DECEMBER



TOTAL ENERGY CONSUMPTION (KWh)- 2018-2019 JANUARY -DECEMBER



ENERGY CONSERVATION MEASURES

- Replace the old tube lights with LED lights.
- Installation of solar street lights inside the campus.
- Installation of sensors based electrification items like lights can save electricity.

ENERGY AUDIT

2021-2022



SAVE NATURE
SAVE FUTURE

SRI VENKATESWARA UNIVERSITY

TIRUPATI-517 502

Introduction

An Energy Audit is a survey in which the study of energy flows for the purpose of conservation is examined at an Organization or University. It refers to a technique or system that seeks to reduce the amount of energy used in the University without impacting the output. The audit includes suggestions of alternative means and methods for achieving energy savings to a greater extent. Conventionally, electrical energy is generated by means of fossil fuels, hydraulic and wind. The availability of fossil fuels and their depletion rate, insist the need for alternate energy systems and conservation of electric energy. In general, the primary objective of an energy auditing and management of energy consumption is to offer goods or services at the lowest possible cost and with the least amount of environmental impact (Backlund and Thollander, 2015). The need for an energy audit is to identify the savings potential and cost reducing methods, understand the ways in which fuel is used, where, the waste occurs and find the scope for improvement.

An energy audit is proposed and conducted to ensure that energy saving practices are implemented and followed in Educational Institutions and Industrial sectors in a sustainable way. Preparation and completion of a questionnaire, physical examination of the campus, observation and examination of documentation, key person interviews, data analysis, measurements and suggestions are all part of the audit process. Energy audit involves several facts including energy savings potential, energy management, finding alternatives, etc. (Cabrera *et al.*, 2010) With these facts in mind, the audit's specific objectives are to assess the competence of the sustainability management and control system, as well as the departments' compliance with applicable rules, policies and standards. It has the potential to have a significant influence on the Organization operational cost as well as the environmental impact (Singh *et al.*, 2012).

Energy audit programme provide aid in maintaining a focus on energy price variations, energy supply availability and efficiency, determining an appropriate energy mix, identifying energy-saving technology, retrofitting for energy-saving equipment and so on. In general, an energy audit process dealt with the driving conservation concepts into reality by giving technically possible solutions within a specified timelimit while also considering the economic and other institutional issues (Asnani and Bhawana, 2015). It also dealt with the uncover ways to cut operating expenses or reduce energy use per unit of production in terms of savings. It serves as

a “benchmark” (reference point) for managing energy in the University for planning more energy-efficient use across the board (Cabrera *et al.*, 2010).

Need for an Energy Audit

Energy Audit will help to understand more about the ways energy and fuel are used in any industry, and help in identifying the areas where waste can occur and where scope for improvement exists. The Energy Audit would give a positive orientation to the energy cost reduction, preventive maintenance and quality control programmes which are vital for production and utility activities. Such an audit programme will help to keep focus on variations which occur in the energy costs, availability and reliability of supply of energy, decide on appropriate energy mix, identify energy conservation technologies, retrofit for energy conservation equipment etc. In general, Energy Audit is the translation of conservation ideas into realities, by lending technically feasible solutions with economic and other University considerations within a specified time frame. The primary objective of Energy Audit is to determine ways to reduce energy consumption per unit of product output or to lower operating costs. Energy Audit provides a “bench-mark” (Reference point) for managing energy in the University and also provides the basis for planning a more effective use of energy throughout the University.

Eco-campus focuses on the reduction of contribution to carbon emissions, carbon footprint calculation, procurement of star rated equipment for a cost effective and secure supply of energy, encourage and enhance energy use conservation in all buildings, reduce the University’s energy consumption, reduce wastes to landfill, and integrate environmental considerations into all contracts and services considered to have significant environmental impacts.

Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. However, energy saving and opportunities may be taken into consideration while energy is extensively used. An energy efficient light emitting diode (LED) uses only less than 10W which indicated the positive indication on energy savings. Energy auditing deals with the conservation and methods to reduce its consumption related to environmental degradation.

Carbon footprint by measuring Carbon dioxide level in the Campus

A measure of the total amount of greenhouse gasses released into the atmosphere as a result of an individual’s, organization’s, or nation’s actions. It’s usually measured in tonnes (or Kgs) of CO₂e (carbon dioxide equivalent). It measures the impact of activities on the environment, in particular climate change. It relates to the amount of greenhouse gases produced through burning

fossil fuels for electricity, heating and transportation etc. A Carbon Footprint Disclosure of any educational institution is very important to understand such that its key emission sources can be identified and necessary mitigation measures can be adopted for carbon reduction.

Carbon Footprint, as an indicator of climate performance, helps identify major GHG emission sources and potential areas for improvement. It has been introduced as a tool to guide the relevant emission cuts and verification that will facilitate the understanding of the risk of global warming at the very first stage. India must set an example by balancing energy use and climate goals.

E-waste management:

E-wastes such as damaged computer parts, batteries, electronic items, electrical appliances, empty toner containers, are disposed as scrap and given away to agencies and the municipal corporation, that recycle such products.

About the Institution

Sri Venkateswara University established in 1954 is located serenely in a picturesque campus at the foot of the Seven hills.

The University has been a premier Institution of Higher Learning, Research, Extension and consultancy to cater to the Educational needs and aspirants of the people of the Rayalaseema Region of Andhra Pradesh and has been playing a pivotal role in creating new knowledge, fostering innovation to produce economic value, and addressing the societal needs and challenges.

Judging the historical time constants of evolution on SVU has emerged as one of the leading Universities in the World in a relatively short span of time.

This rapid ascent stems from the core activities of SVU which have a demonstrable influence in advancing knowledge that benefits national priorities and global scientific innovations.

Infrastructure and Learning Resources

The University has 4,27,650 Sq.m. built up area catering the needs of all the Departmental Infrastructural needs.

The University over these years made perceptible changes by improving the living environment, better infrastructure, Instrumentation, Laboratory facilities and overall opportunities for conducive learning experience.

The University has sufficient numbers of class rooms, laboratories and Seminar halls scattered in all the Departments and all are equipped with ICT enabled tools. 4 Auditoriums, 4 Open auditoriums, 74 Seminar halls with different capacities are available. 45 Class rooms / Seminar Halls are equipped with interactive smart board facility. All the Departments have their own Seminar Hall.

Hostels for Boys (13 Blocks), Girls (9 Blocks, 2/3 Floors), and one Block each exclusively for Specially abled persons, Research Scholars.

Accommodation facilities are available for more than 5820 students (2215 Girls + 3605 Boys).

Guest house with (2 Blocks) 28 Rooms, with all amenities.

Round the clock safety of the campus is ensured by the University security services.

Health centers, staff quarters, Post office, two Nationalized Banks, two ATM Centers, Child-care center, Sports Gymnasium, Indoor sports facilities, Outdoor sports courts, a big S.V.U Sports Stadium, walking tracks etc are the other amenities available meeting the student and staff requirements.

Excellent University Central Library, which is fully automated and more than 3.9 lakhs of Books and 260 Periodicals.

Library has wide range of electronic databases, online resources, e-journals, e-shodhganga and online books. Departments also have separate Department libraries with good number of collection.

Majority of Departments have Computer labs and University encourages Judicious use internet for efficient implementation of the Teaching-Learning process.

Online courses are conducted through the LMS-Jitsi.

University Campus has 1GBPS internet connectivity and more than 1500 students using the facility having link to National Knowledge Network (NKN) to provide smooth internet facility to access online learning materials. All the Infrastructural facilities are properly maintained by Engineering Departmental Staff and large amounts are being spent.

University has been imparting quality education through an outcome and value based education, supported by competent and learned Faculty members who regularly update their knowledge through organizing and participating in National and International Conferences, Seminars and Workshops.

The Faculty Members have also raised the standards of Teaching through incorporating MOOC courses, chiefly NPTEL & SWAYAM in their routine classroom Teaching.

The University is doing commendable work in scientific research as visible from the citations per paper through SCOPUS and Web of Science.

The University has many accomplishments over these years which include accreditation by NAAC with 'A+' grade, NIRF University Ranking 54.

University also figured consecutively in the different Ranking systems including QS Asia Rankings, Times Higher Education, Education World Rankings, Asia University Rankings.

All the courses are being run on CBCS, whereas the Engineering subjects are accredited by NBA, AICTE, and other courses are accredited with NCTE, PCI etc.

All these achievements helped the University to receive substantial funding from DST-FIST, UGC-SAP, RUSA, TEQIP, DST-PURSE etc and to develop academic collaboration with reputed National and International Institutions.

Besides, the University also received a major contribution/support from Govt of Andhra Pradesh.

Recommendations for improving the energy efficiency and energy conservation in the University

The energy audit included suggestions for energy cost reduction, preventive maintenance and quality control activities, all of which are critical for utility operation in the audit sites.

- Procurement of equipment with energy efficiency (4-5 star rated equipment) during replacement may be considered.
- Sub meters in all the buildings for energy monitoring is recommended so that energy load required and energy consumption in each building may be noted.
- Optimal water usage and temperature settings may be used which are coming under automatic process towards energy savings.
- Continuous monitoring and analysis of energy consumption by dedicated team may be planned within the campus.
- Promoting ECON awareness and practice among the stakeholders may be conducted periodically through Association, Clubs, Forums and Chapters.
- Turn off electrical equipment when not in use.
- Maintain appliances and replace old appliances in all laboratories.
- Use computers and electronic equipment in power saving mode.

Energy Consumption Data:

The electricity supply for Sri Venkateswara University is provided by Andhra Pradesh Southern Power Distribution Company Limited (APSPDCL). The energy consumed by Sri Venkateswara University falls under Government Education category. The Contracted Demand is 152.94 KVA and the connected load is 130 KW. The energy consumption of the whole campus is facilitated through two substations having a total of 10 MVA with a total of 22 transformers with 350 KVA each.



SUB STATION IN THE UNIVERSITY



Near SVU Press



Near SVU Womens' Hostel

The University also has a facility of two DG sets having a total capacity of 350 KVA. The DG set are mainly used for power failure from APSPDCL.

Sl.No.	DG Details	Make
1.	250KVA	Mahindra
2.	100KVA	Surya



Diesel Generator Near Day Care Center

The Campus also has several Solar Panel installed in some of the buildings. The details given below:

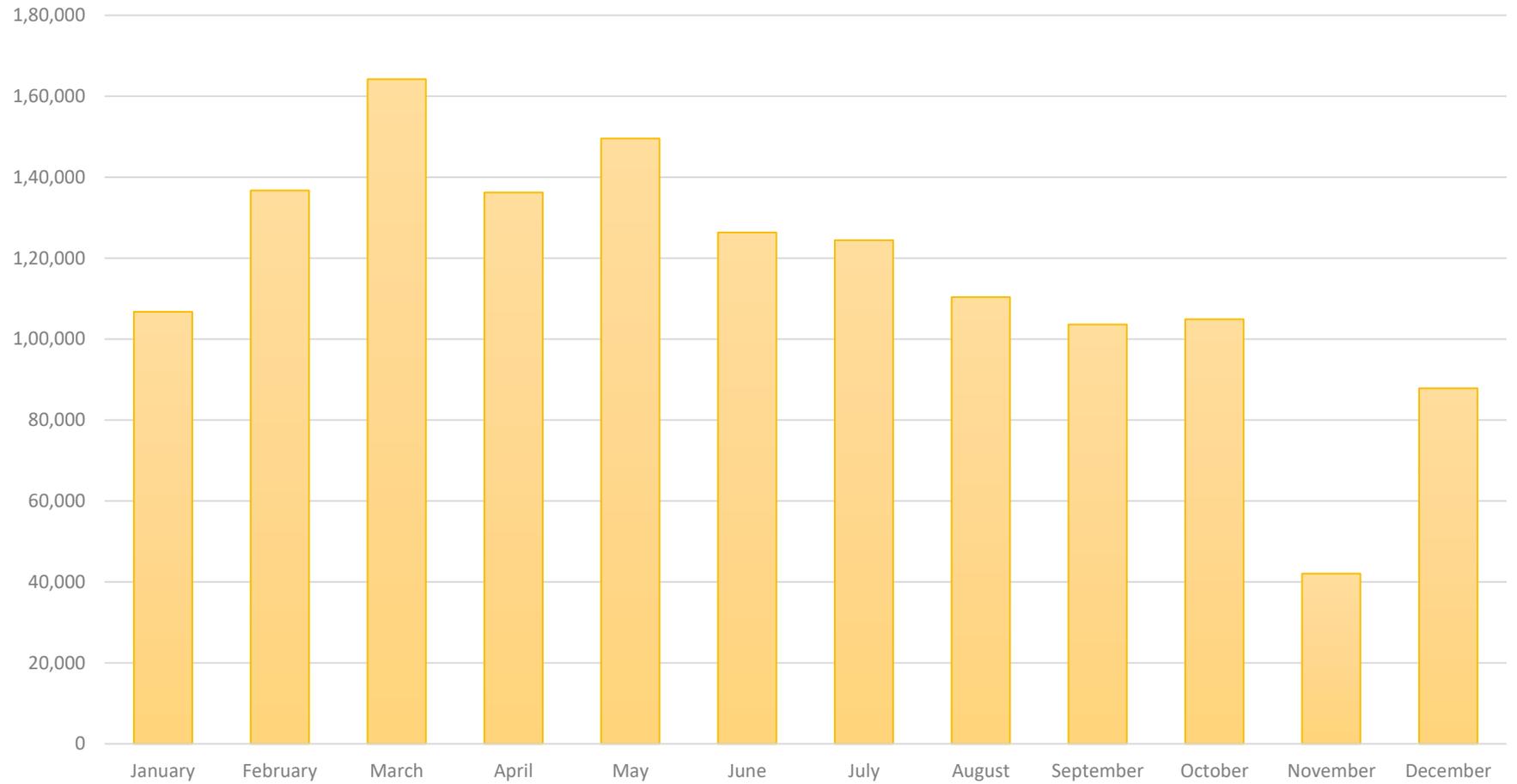
S.No.	Capacity	Building
1.	150 KWP	SV Engineering Colleges & SS
2.	400 KWP	Control Houses & Computer Centers
3.	450 KWP	Admin Building and C-Block Hostels
4.	500 KWP	Virology
5.	500 KWP	S V Engineering Colleges

Monthly Energy Consumption:

During 2021:

S. No.	Service No	Contracted Load (KVA)	Category & Voltage Level (KV)	Available Transformer Capacity (KVA)	Months	Year	Electricity Consumption	Bill Amount (RS.)
							Units	
1	(HT- 23,27,36,156,24 6,301,529,2316) (LT- 174,175,176,292, 293,557232)	RYB- (Red, Yellow, Blue)	160/200/400	250/350	January	2021	1,06,727	10,24,579.2/-
2					February	2021	1,36,716	13,12,473.6/-
3					March	2021	1,64,217	15,76,483.2/-
4					April	2021	1,36,231	13,07,817.6/-
5					May	2021	1,49,528	14,35,468.8/-
6					June	2021	1,26,305	12,12,528/-
7					July	2021	1,24,432	11,94,547.2/-
8					August	2021	1,10,349	10,59,350.4/-
9					September	2021	1,03,624	10,25,877.6/-
10					October	2021	1,04,914	10,07,174.4/-
11					November	2021	42,017	4,03,363.2/-
12					December	2021	87,843	8,43,292.8/-
Total Amount								1,34,02,956/-

TOTAL ENERGY CONSUMPTION (KWh)-2021 JANUARY -DECEMBER

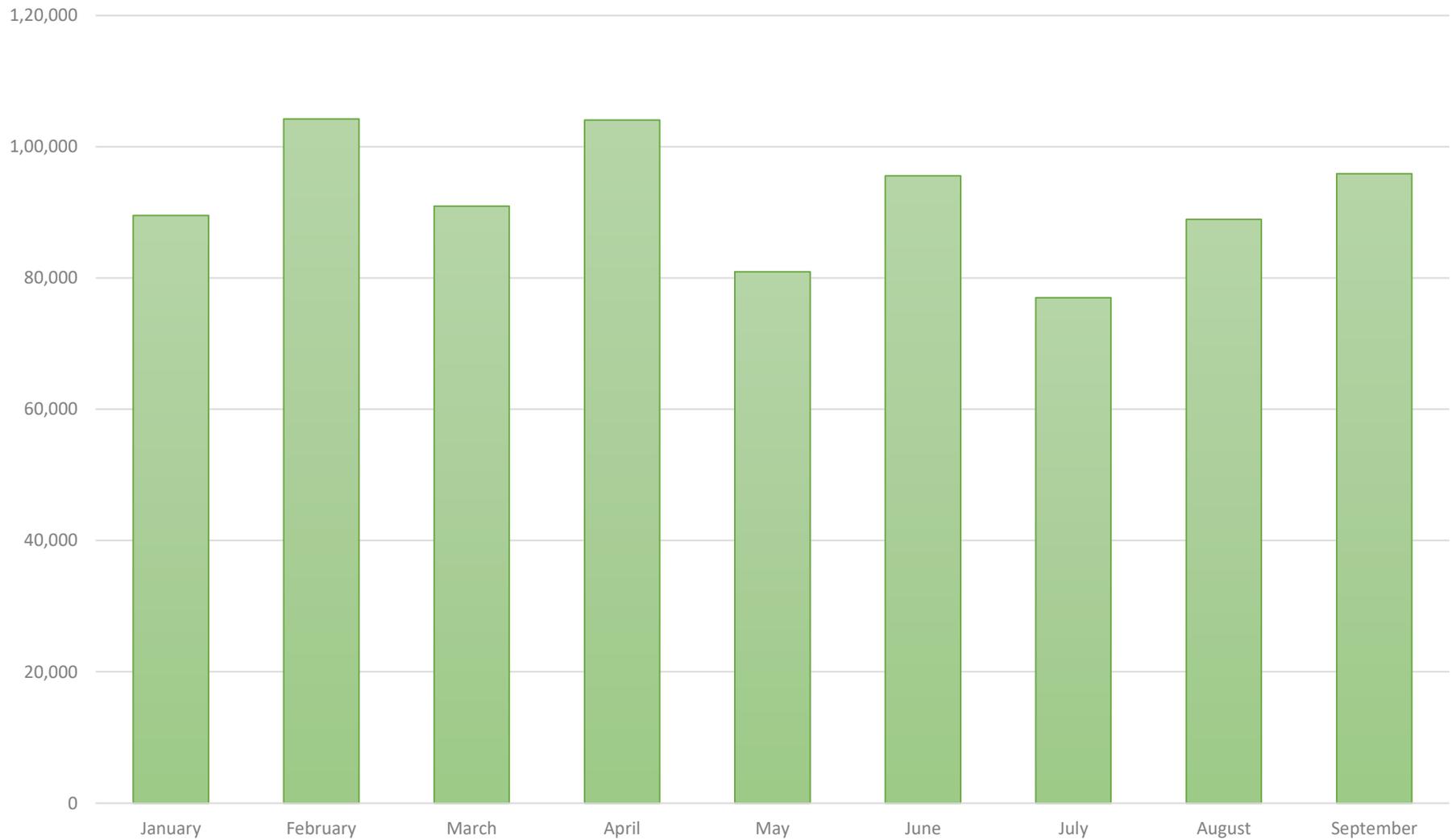


Monthly Energy Consumption:

During 2022:

S. No.	Service No	Contracted Load (KVA)	Category & Voltage Level (KV)	Available Transformer Capacity (KVA)	Months	Year	Electricity Consumption	Bill Amount (RS.)
							Units	
1	(HT- 23,27,36,156,246,301, 529,2316) (LT- 174,175,176,292,293,5 57232)	RYB- (Red, Yellow, Blue)	160/200/400	250/350	January	2022	89,502	8,90,544.9
2					February	2022	1,04,219	10,36,979.05
3					March	2022	90,939	9,04,843.05
4					April	2022	1,04,064	10,35,436.8
5					May	2022	80,961	8,05,561.95
6					June	2022	95,572	9,50,941.4
7					July	2022	76,985	7,66,000.75
8					August	2022	88,917	8,84,724.15
9					September	2022	95,897	9,54,175.15
							Total Amount	82,29,207.2

TOTAL ENERGY CONSUMPTION (KWh)-2022 JANUARY-SEPTEMBER





Certificate

HYM International Certifications Pvt. Ltd.

Certified that the Energy Management System of

SRI VENKATESWARA UNIVERSITY

Tirupati, Chittoor District - 517 502,
Andhra Pradesh, India

has been assessed and found to be in accordance with the requirements of the Energy standards

ISO 50001 : 2018

for the following scope of certification

IMPLEMENTATION OF ENERGY SAVING PRACTICES

Further information about the scope of this certificate and applicability of ISO 50001 : 2018 requirements may be obtained by consulting the organization.

Issue Date : 18/08/2022

1st Surveillance 17/08/2023

Renewal Date : 17/08/2025

2nd Surveillance 17/08/2024



Authorised Signature

Certificate No : **En9186414086**

HYM International Certifications Pvt. Ltd

NOTE: This Certificate is Valid From 18/08/2022 to 17/08/2023

This is an accredited certificate authorized for issue by Accreditation Service for Certifying Bodies [Europe] Limited who have assessed M/s.HYM International Certifications Pvt. Ltd. against defined criteria and in cognisance of ISO 17021:2015 "Conformity Assessment - Requirements for bodies providing audit and Certification of management Systems".

www.hymcertifications.com on for checking the validation of the Certification

Regd. Office : Plot No. 265/C, Addagutta Society, Opp. JNTU, Kukatpally, Hyderabad - 500 072, Telangana State, India.
E-mail: siva@hymcertifications.com, Website: www.hymcertifications.com



सत्यमेव जयते

भारत सरकार / Government of India

महात्मा गांधी राष्ट्रीय ग्रामीण शिक्षा परिषद / Mahatma Gandhi National Council of Rural Education

उच्चशिक्षाविभाग / Department of Higher Education

शिक्षामंत्रालय / Ministry of Education



Where there is Rural Wellbeing
there is Universal Prosperity

District Green Champion Certificate

This is to certify that **SRI VENKATESWARA UNIVERSITY** is hereby recognized as **District Green Champion** for **Chittoor** District, Andhra Pradesh for the Academic Year 2021-22. The institution has successfully elevated the Swachhta Action Plan, adopted and implemented best practices in the areas of Sanitation, Hygiene, Waste Management, Water Management, Energy Management and Greenery Management.

Dr W G Prasanna Kumar
Chairman, MGNCRE

Ministry of Education, Government of India

तारीख / Date : 12.03.2022

ज्ञापनसंख्या / Memo no: MGNCRE/SAP22/10

Conclusion:

Considering the fact that the University is a well-established, long time run establishment with good reputation, there is significant scope for conserving energy and make the campus as self-sustained in it. The energy conservation initiatives taken up by the institution are substantial. Energy efficient lighting schemes, awareness created among stakeholders and necessary power backups are being practiced by the institution. There are some best Practices followed on Energy Audit in the University like Transformers, and UPS are protected properly with fencing and kept awareness boards on 'Dangers' and 'Warnings'. It is observed that the most of places, sign board of 'Switch ON' and 'Switch OFF' are kept towards saving energy measures to the stakeholders. Electrical wires, switch boxes and stabilizers are properly covered without any damage which will cause any problems to the staff and student members.



SRI VENKATESWARA UNIVERSITY
Tirupati - 517502

**ENVIRONMENTAL
AUDIT
2018 - 2019**



ACKNOWLEDGEMENT

The Audit Assessment Team thanks **the Sri Venkateswara University, Tirupati, Andhra Pradesh, India** for assigning this important work of Environment Audit. We appreciate the cooperation extended to our team during the entire process of the year **2018-2019**.

Our special thanks are due to **Hon'ble , Vice-Chancellors; Prof. G. Janaki Ramaiah I/c, M.A., Ph.D. , Prof. VVN Rajendra Prasad,M.A., Ph.D., Sri J.S.V. Prasad, IAS,(I/c Vice-Chancellor) Sri Satish Chandra, IAS,(I/c Vice-Chancellor) , Prof.G. Jankiramaiah Rector and Prof. R.K Anuradha Registrar.**

We are also thankful to University's Task force- the faculty members who have collected data required.

We highly appreciate the assistance of the Admin Staff for their support while collecting the data.

The kind gesture of the Non-Teaching Staff and Maintenance Staff for the inventory and data collection is quite commendable.

AUDIT COMMITTEE MEMBERS

The Committee members are listed below:

S. No.	Name	Designation
1.	Vice-Chancellor Prof. G. Janaki Ramaiah I/c, M.A., Ph.D. , Prof. VVN Rajendra Prasad,M.A., Ph.D., Sri J.S.V. Prasad, IAS,(I/c Vice-Chancellor) Sri Satish Chandra, IAS,(I/c Vice-Chancellor)	Chairman
2.	Registrar(Prof. R.K Anuradha)	Convener
3.	Rector(Prof.G. Jankiramaiah)	Member
4.	IQAC Director	Member
5.	NAAC Steering Committee Director	Member
6.	Prof. S. Narayana Reddy E.C. E	Member
7.	Prof. G. Padmanabham Arts	Member
8.	Prof. G. Anjan Babu Computer Science	Member
9.	Dr. K. Majula Home Science	Member
10.	Dr. K.V. Sucharita Home Science	Member

**An Environment
&
Ecological Friendly Premises**

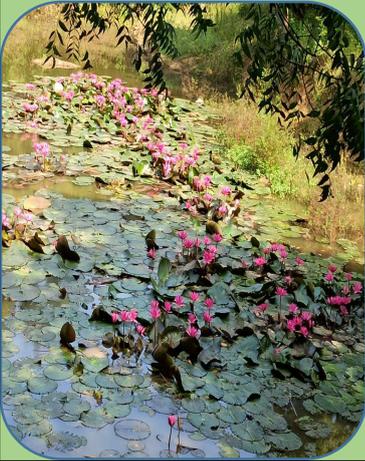
Govt. State Level University

Recognized by UGC (Under the act of 1954)

SRI VENKATESWARA UNIVERSITY

Tirupati, Andhra Pradesh – India 517 502





LOTUS POND



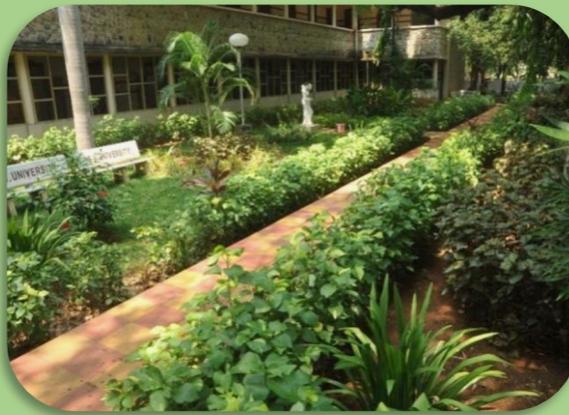
AN ENVIRONMENT AND ECOLOGICAL FRIENDLY PREMISE



SVU GREENERY



SOLAR GENERATION



POLLUTION FREE ENVIRONMENT



SVU GARDEN

1.INTRODUCTION

1.1 About Sri Venkateswara University

An educational institute is beyond than being just a building. It helps one in acquiring knowledge which is a gateway to bring successful and a good human in the society.

“The goal of Education is the advancement of Knowledge and the dissemination of truth.” —John F. Kennedy

Sri Venkateswara University is one of the Prestigious Universities in the state of Andhra Pradesh located serenely in a picturesque campus at the foot of the Seven hills of the Tirupati. It was started in the year 1954 by Sri Tanguturi Prakasam Pantulu, the Chief Minister of Andhra Pradesh and the founder Vice-Chancellor Siram Gonvidarajulu Naidu, with a passion desire for the students to become tomorrow’s creators of the Nation and to inculcate skills of leadership in all aspects of life.

The University was established under Sri Venkateswara University Act No. XIV of 1954, which came into force on 2nd September 1954 with the Campus area of 483 acres (427650.8sq.mts.).The University has been a premier Institution of Higher Learning, Research, Extension and consultancy to cater to the Educational needs and aspirants of the people of the Rayalaseema Region of Andhra Pradesh and has been playing a pivotal role in creating new knowledge, fostering innovation to produce economic value, and addressing the societal needs and challenges.

Judging the historical time constants of evolution SVU has emerged as one of the leading Universities in the World in a relatively short span of time.

This rapid ascent stems from the core activities of SVU which have a demonstrable influence in advancing knowledge that benefits national priorities and global scientific innovations.

“Education is the most powerful weapon which you can use to change the world.” —Nelson Mandela

The University offers Undergraduate, Post-Graduate courses, research programmes. It has full-fledged infrastructure, advanced academic programmes and efficient administrative hierarchy. It produces students who contribute to the intellectual, social, political, moral, ethical and technological development of the society in which they live. It is one of the best Educational Universities providing quality education through an outcome and value based education, supported

by competent and learned Faculty members who regularly update their knowledge through organizing and participating in National and International Conferences, Seminars and Workshops.

The Faculty Members have also raised the standards of Teaching through incorporating MOOC courses, chiefly NPTEL & SWAYAM in their routine classroom Teaching.

The University is doing commendable work in scientific research as visible from the citations per paper through SCOPUS and Web of Science.

The University has many accomplishments over these years which include accreditation by NAAC with 'A+' Grade,.

University also figured consecutively in the different Ranking systems including QS Asia Rankings, Times Higher Education, Education World Rankings, Asia University Rankings.

All the courses are being run on CBCS, whereas the Engineering subject are accredited by NBA, AICTE, and other courses are accredited with NCTE, PCI etc.

All these achievements helped the University to receive substantial funding from DST-FIST, UGC-SAP, RUSA, TEQIP, DST-PURSE etc and to develop academic collaboration with reputed National and International Institutions. Besides, the University also received a major contribution/ support from Government of Andhra Pradesh.

Several departments have received Special Assistance Programmes (SAP) of UGC, New Delhi and also received fund under FIST program of DST, New Delhi to improve infrastructural facilities. Most of the faculties have obtained research grants from various national funding agencies like UGC, DST, DBT, CSIR, ICMR, ICSSR, BRNS, ISRO, MNES, MoES, MoEF and DRDO and foreign financing such as UNESCO, UK-DFID, ICRISAT, European Commission Programme ERASMUS MUNDUS. Utilizing these impressive funding, the faculty of the University have proactively interacted with Industry, Academic and Research Institutes in National and International level and entered into collaborative research agreements through MoUs (Memorandum of Understanding) to conduct research work in frontier areas of national & International importance.

The students belonging to socially and economically backward communities and those who are economically poor get State and Central Government Welfare Scholarships. Fellowships and Scholarships are offered to Research Students of the campus by the University and also by the UGC, CSIR, DAE, ICMR, ISRO, ICAR, ICPR, ICHR, ICSSR, DST, DRDO, SRNS and Rashtriya Sanskrit Sansthan.

The University Central Library is the major resource Centre that provides information for research students and faculty. It provides unlimited access to the UGC INFONET e-resources and e-journals through UGC INFONET Digital Library Consortium. The library is kept open from 8.00 am till 10.00 pm on all working days and from 10.00 am to 5.00 pm on Sundays and public

holidays besides the addition of latest books related to both teaching and research in the main library, most of the departments have developed departmental libraries by utilizing the grant from the University or from special assistance received from funding agencies like UGC, DST, etc.

The University provides residential facilities to research scholars, Post-Doctoral fellows and other researchers in the hostels specially earmarked for them on the campus. Summer fellows, research associates, visiting scientists and faculty researchers from other universities and academics are provided accommodation in the university guest house and Academic Staff college guest house. The university campus is completely Wi-Fi connected. The university provides computer and uninterrupted internet facilities for research students, fellows as well as faculty on the campus in all the blocks and laboratories. Direct internet facility and common internet hubs are set-ups near the hostels and quarters on the campus to provide internet access free of cost.

Besides meeting the infrastructure facilities of office, Separate Hostels for Boys and Girls, Cultural Centre and world Class Gymnasium and Sports facilities are being created. International Students Canteen, Digital Library, Wi-Fi Connectivity, Networking, Smart Campus, Air-Conditioned Auditorium, Development of Greenery and State of the modern art furniture in classrooms, faculty rooms, offices, Guest House and Auditorium are under progress.

1.2 Vision and Mission of University

1.2.1 Vision to the prospect

- To impart quality education to meet the global standards with a need based and outcome based approach.
- To extend eco-friendly innovative research adhering to International standards and sustenance by becoming a hub for innovative practices.
- To take up research on par with the highest standards in academia and to ensure that the Institution serves the needs of community in which it is based.
- To prioritize industry community University linkage to bring out employability skilled, quality and responsible citizens for the nation.

1.2.2 Mission

The University is to create, disseminate and inculcate the knowledge in the domains of Higher Education. Being a reputed University of Academic Excellence, the University is striving to:

- Provide the quality learning and teaching environment for the well-being of students and to deliver entrepreneurial skills for young minds.
- Promote Academic Freedom, Transparency and Accountability to all the Stakeholders for a holistic growth and development of the Institution.
- Prosper an Intellectual culture that drives discipline and ideas to foster reputation for a

Dynamic, Diverse, Equitable and Global University.

- Provide innovative solutions, process and products for social prosperity and promotion.
- Provide a vibrant learning environment, fostering innovation and creativity by Cutting Edge Research.
- Aspire as a National leader in developing educated contributors, career ready learners and globally competitive citizens.
- Offer need based, society driven, industrially relevant academic programmes with a view to make future ready civilians.
- Make a significant, consistent and sustainable contribution towards social, cultural and economic life.
- Adopt hassle free, distributed, committed and transparent governance.

The University has conducted various workshops/seminars related to Research methodology, IPR, entrepreneurship and skill development. The Institution has received several Awards/Recognitions and patents have been published /awarded. The University code of research ethics is promulgated through research methodology course work, Board of studies, ethical committee and plagiarism check software (URKUUD/Original).

Faculty were recognised through incentives such as medals, certificates of honour and announcement in either newsletter or University website for their Research contributions. students were awarded Ph.D.'s during this period of assessment. The faculty and their research associated have published research publications, with a h-index of Web of science, Scopus and Books/Book Chapters/Conference Proceedings.

The University continuously extends its activities by the active participation of students in the neighborhood habitations through rallies, different types of programmes / Camps benefiting many people.

For these extension activities, the NSS Units got awards/accolades from state government and other agencies. Different collaborative activities have been undertaken with various institutions/laboratories through various functioning MOU's.

Recognitions-University Grants Commission (UGC) by 2(f) 12(b)

Accreditation Details- The following are details of the reaccreditation of the College.

Cycle Info	Accreditation	Grade	CGPA	Upload Peer Team Report
Cycle 1	Accreditation	Four Star	70.2	Cycle-1.pdf
Cycle 2	Accreditation	A	3.13	Cycle-2.pdf
Cycle 3	Accreditation	A+	3.52	Cycle-3.pdf



राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद्

विश्वविद्यालय अन्तर्गत प्रयोग का भारत सरकार के अधीन

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

An Autonomous Institution of the University Grants Commission, Bangalore

Certificate of Accreditation

The Executive Committee of the National Assessment and Accreditation Council, on the recommendation of the duly appointed Peer Team, is pleased to declare the

Sri Venkateswara University

Tirupati, Andhra Pradesh, as

Accredited¹

at the Four star level²

(among the Universities)

Date : May 15, 2002

Director

Dr. P. V. Rao

1 This certification is valid for a period of 5 (five) years with effect from the academic year 2001-2002.

2. An institutional score (%) in the range of 55-60 denotes one star, 60-65 two stars, 65-70 three stars, 70-75 four stars, and 75 and above five stars (upper limit exclusive).

CC - 25 - 5



राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद
विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान
NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL
An Autonomous Institution of the University Grants Commission

Quality Profile

Name of the Institution : Sri Venkateswara University

Place : Tirupati, Andhra Pradesh

Criteria	Weightage (W _i)	Criterion-Wise Grade Point Averages (C _r , GPA)	W _i X C _r , GPA
I. Curricular Aspects	150	3.67	551
II. Teaching-Learning and Evaluation	250	3.12	780
III. Research, Consultancy and Extension	200	3.00	600
IV. Infrastructure and Learning Resources	100	3.35	335
V. Student Support and Progression	100	3.30	330
VI. Governance and Leadership	150	2.37	356
VII. Innovative Practices	050	3.60	180
Total	$\sum_{i=1}^7 W_i = 1000$		$\sum_{i=1}^7 (W_i X C_r, GPA) = 3132$

$$\text{Institutional Score} = \frac{\sum_{i=1}^7 (W_i X C_r, GPA)}{\sum_{i=1}^7 W_i} = \frac{3132}{1000} = \boxed{3.13}$$

Grade =

Descriptor =

Date : March 08, 2009



HARIN
Director

- This certification is valid for a period of five years with effect from March 08, 2009
- An institutional CGPA on four point scale in the range of 3.01 - 4.00 denotes A grade (Very Good), 2.01 - 3.00 denotes B grade (Good), 1.51 - 2.00 denotes C grade (Satisfactory)
- Scores rounded off to the nearest integer



राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद

विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

An Autonomous Institution of the University Grants Commission

Quality Profile

Name of the Institution : Sri Venkateswara University

Place : Tirupati, Dist. Chittoor, Andhra Pradesh

Criteria	Weightage (W _i)	Criterion-wise Weighted Grade Point (Cr WGP)	Criterion-wise Grade Point Averages (Cr WGP _i / W _i)
I. Curricular Aspects	150	550	3.67
II. Teaching-Learning and Evaluation	200	650	3.25
III. Research, Consultancy and Extension	250	910	3.64
IV. Infrastructure and Learning Resources	100	370	3.70
V. Student Support and Progression	100	360	3.60
VI. Governance, Leadership & Management	100	350	3.50
VII. Innovations and Best Practices	100	330	3.30
Total	$\sum_{i=1}^7 w_i = 1000$	$\sum_{i=1}^7 (Cr WGP)_i = 3520$	

$$\text{Institutional CGPA} = \frac{\sum_{i=1}^7 (Cr WGP)_i}{\sum_{i=1}^7 W_i} = \frac{3520}{1000} = \boxed{3.52}$$

Grade = $\boxed{A^+}$

Date : June 09, 2017



Alkhy
Director

- This certification is valid for a period of Five years with effect from June 09, 2017
- An institutional CGPA on seven point scale in the range of 3.76 - 4.00 denotes A** grade, 3.51 - 3.75 denotes A+ grade, 3.01 - 3.50 denotes A grade, 2.76 - 3.00 denotes B** grade, 2.51 - 2.75 denotes B+ grade, 2.01 - 2.50 denotes B grade, 1.51 - 2.00 denotes C grade
- Scores rounded off to the nearest integer

EC(SC)/25/A&A/6.3



राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद

विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

An Autonomous Institution of the University Grants Commission

Certificate of Accreditation

*The Executive Committee of the
National Assessment and Accreditation Council
on the recommendation of the duly appointed
Peer Team is pleased to declare the
Sri Venkateswara University
Tirupati, Andhra Pradesh as
Accredited
with CGPA of 3.13 on four point scale
at A grade
valid up to March 07, 2014*

Date : March 08, 2009



HARUN
Director

EC/48/RAK/07



राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद

विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

An Autonomous Institution of the University Grants Commission

Certificate of Accreditation

*The Executive Committee of the
National Assessment and Accreditation Council
on the recommendation of the duly appointed
Peer Team is pleased to declare the
Sri Venkateswara University
Tirupati, Dist. Chittoor, Andhra Pradesh as
Accredited
with CGPA of 3.52 on seven point scale
at A⁺ grade
valid up to June 08, 2022*

Date : June 09, 2017



D. Singh
Director

EC(SC)/25/A&A/63

2.Green Building Audit

2.1 About the Green Building Study Audit

It is a systematic study of the aspects which make the Institution a suitable and healthy premises for its inhabitants.

2.2 Analysis for the Green Building Study Audit

Energy Audit

- Analysis of the Lights, Fans, AC equipment
- Renewable energy
- Scope for reducing the current energy bills
- Improvement in the thermal comfort of the Campus

Green Audit

- Green Initiatives
- Hygiene Audit

Environmental Audit

- Analysis of the current landscape
- Analysis of the flora and fauna of Campus
- Measures that can be adopted for Ecological improvement of the premises.

2.3 Green Audit, a Tool for Environmental Protection and Conservation

The modernization and industrialization are the two important outputs of twentieth century which have made human life more luxurious and comfortable. Simultaneously, they are responsible for voracious use of natural resources, exploitation of forests and wildlife, producing massive solid waste, polluting the scarce and sacred water resources and finally making our mother Earth ugly and inhospitable. Today, people are getting more familiar to the global issues like global warming, greenhouse effect, ozone depletion and climate change etc. Now, it is considered as a final call by mother Earth to walk on the path of sustainable development. The time has come to wake up, unite and combat together for sustainable environment.

Considering the present environmental problems of pollution and excess use of natural resources, Hon. Prime Minister, Shri. Narendra Modiji has declared the Mission of Swachh Bharat Abhiyan. Also, University Grants Commission has mentioned “Green Campus, Clean Campus” mission mandatory for all higher educational institutes. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent.

Green Audit is the most efficient ecological tool to solve such environmental problems. It is a process of regular identification, quantification, documenting, reporting and monitoring of environmentally important components in a specified area. Through this process the regular environmental activities are monitored within and outside of the concerned sites which have direct and indirect impact on surroundings. Green audit can be one of the initiative for such institutes to account their energy, water resource use as well as wastewater, solid waste, E-waste, hazardous waste generation. Green Audit process can play an important role in promotion of environmental awareness and sensitization about resource use. It can create consciousness towards ecological values and ethics. Through green audit one can get direction about how to improve the condition of environment.

Need of Green auditing:

Green auditing is the process of identifying and determining whether institutions practices are eco-friendly and sustainable. Traditionally, we are good and efficient users of natural resources. But over the period of time excess use of resources like energy, water, chemicals are become habitual for everyone especially, in common areas. Now, it is necessary to check whether our processes are consuming more than required resources? Whether we are handling waste carefully? Green audit regulates all such practices and gives an efficient way of natural resource utilization. In the era of climate change and resource depletion it is necessary to verify the processes and convert it into green and clean one. Green audit provides an approach for it. It also increases overall consciousness among the people working in institution towards an environment.

Goals of Green audit:

University has conducted a green audit with specific goals as:

- Identification and documentation of green practices followed by university.
- Identify strength and weakness in green practices.
- Conduct a survey to know the ground reality about green practices.
- Analyze and suggest solution for problems identified from survey.
- Assess facility of different types of waste management.
- Increase environmental awareness throughout campus.
- Identify and assess environmental risk.
- Motivates staff for optimized sustainable use of available resources.
- The long-term goal of the environmental audit program is to collect baseline data of environmental parameters and resolve environmental issue before they become problem.

Students are the major strength of any academic institution. Practicing green actions in any educational institution will inculcate the good habit of caring natural resources in students. Many environmental activities like plantation and nurturing saplings and trees, Cleanliness drives, Rain water harvesting, etc. will make the students good citizen of the country. Through Green Audit, higher educational institutions can ensure that they contribute towards the reduction of Global warming through Carbon Footprint reduction measures.

Benefits of Green Audit to an Educational Institute:

There are many advantages of green audit to an Educational Institute:

- It would help to protect the environment in and around the campus.
- Recognize the cost saving methods through waste minimization and energy conservation.
- Find out the prevailing and forthcoming complications.
- Empower the organization to frame a better environmental performance.
- It portrays good image of institution through its clean and green campus.



SRI VENKATESWARA UNIVERSITY MASTER PLAN



Fig. : Sri Venkateswara University Master Plan

Objectives of Green audit:

The main objective of Green Audit at Sri Venkateswara University is to make a complete assessment of the environmental indicators in the campus and make recommendations for implementation in the campus for better environmental management. To make a complete assessment of the environmental indicators in the campus and make recommendations for implementation in the campus for better environmental management.

1. To assess the quality of the water and recycling of waste water in the university campus
2. Estimation of energy & fuel usage and evaluating the carbon foot print of the university on a full attendance day
3. Evaluation of the measures implemented by university in reducing the Carbon Footprint
4. To monitor the generation of solid waste and adopting strategies for its recycling
5. To evaluate the biodiversity of flora and fauna of the campus and providing a database for corrective actions and future plans.

2.4 Water and Wastewater Audit

Water which is precious natural national resource available with fixed quantum. The availability of water is decreasing due to increasing population of nation, as per capita availability of utilizable water is going down. Due to ever rising standard of living of people, industrialization, urbanization, demand of fresh water is increasing day by day. The unabated discharge of industrial effluent in the available water bodies is reducing the quality of these ample sources of water continuously. Hence, the national mission on water conservation was declared by the then Hon. Prime Minister Narendra Modi as 'Jal Shakti Abhiyan' and appealed to all citizens to collectively address the problem of water shortage, by conserving every drop of water and suggested for conducting water audit for all sectors of water use.

Water audit can be defined as a qualitative and quantitative analysis of water consumption to identify means of reducing, reusing and recycling of water. Water Audit is nothing but an effective measure for minimizing losses, optimizing various uses and thus, enabling considerable conservation of water in irrigation sector, domestic, power and industrial as well. A water audit is a technique or method which makes possible to identify ways of conserving water by determining any inefficiencies in the system of water distribution. The measurement of water losses due to different uses in the system or any utility is essential to implement water conservation measures in such an establishment.

Importance of Water Audit

It is observed that a number of factors like climate, culture, food habits, work and working conditions, level and type of development, and physiology to determine the requirement of water. The community which has a population between 20,000 to 1,00,000 requires 100 to 150 liters per person (capita) per day. The communities with a population can consume over 1, 00,000 requires 150 to 200 liters per person (capita) per day. As per the standards provided by WHO Regional office for South East Asia Schools require 2 liters per student; 10-15 liters per student if water-flushed toilets.

. Water usage can be defined as water used for all activities which are carried out on campus from different water sources. This includes usage in all residential halls, academic buildings, on campus and on grounds. Wastewater is referred as the water which is transported off the campus. The wastewater includes sewage, hostel and residential water used in cooking, showering, clothes washing as well as waste water from chemical and biological laboratories which ultimately going down in sink or drainage system.

University Water Resources

The Main water uses in the campus includes drinking, cleaning, toilets and gardening. The University campus has continuous water supply of 24/7 through AP Government Telugu Ganga Project. In addition, there are 10 numbers of water bore wells in Men and Women Hostels, Engineering college campus and university gardens. The campus has several water harvesting units to recharge ground water. The water requirement is calculated based on per person utility per day.

Toilet usage -20 lts, Shower -20 lts, clothes washing- 20 lts, utensil washing – 10 lts, mopping and washing rooms– 10 lts, cooking – 5 litres, drinking -2.5 lts and gardening – 30 lts.



Fig.: Bore well



Fig.: Open well

2.5 Rain Water Harvesting

Rainwater harvesting means capturing rain where it falls or capturing the run off of rain water in Sri Venkateswara University premises. Rainwater harvesting system, also called rainwater collection system or rainwater catchment system, technology that collects and stores rainwater for further use. The collected water is also kept clean by filtering and such design of facility that does not allow pollutants to mix with collected water. Rain water is harvested from terrace, and ground floor areas for reusing in watering of lawns. Surface runoff from various ground sources and terraces are collected, filtered and recirculated for gardening and washing purpose. Besides natural percolation tanks, concrete storage tanks have also been built and rain water has been stored after proper filtration paving the open places with concrete roads is avoided so that rain water can be percolated. The rainwater harvested during rains not only helps to save water from conventional sources, but also to save energy and reduce expenses incurred on transportation and distribution of water. Awareness programmes on water conservation and rain water harvesting have been conducted regularly through various service of the University. One of the rain water harvesting pit is seen near Post Office. Similar structures are seen at different locations within premises.



Fig: Rain water Harvesting Pit



Fig.: Rain Water Harvesting



Fig: Rain Water Harvesting at Academic Building



Fig.: Rain Water Harvesting at Academic Building



Fig.: Rain Water Harvesting at Academic Building

Reusage Of Waste Water:

Wastewater recycling is considered as the best option of water usage. The waste water generated is filtered through coarse filter system and is used for watering outdoor lawns, gardens, potted plants, cleaning of stair case, verandas, pavements and drive ways.



Fig.: Reusage of Waste water

a. CONSTRUCTION OF TANKS AND BUNDS

As the water crisis continues to become severe, there is a dire need of reform in water management system and revival of traditional systems. As a part of revival to traditional wisdom, the institution-built rain water storage tank, to collect the rainwater and can be used whenever it is required. One of such bunds are seen in front of SVU Women's Hostel. Bunds are constructed to create stability of existing subsoils, slope angles and water levels to ensure the integrity of the reclamation area. Bunds are constructed to control the water table within the reclamation area; and. control the flow of the discharge water in the fill area.



BUNDS

b. MAINTENANCE OF WATER BODIES AND DISTRIBUTION SYSTEM IN THE CAMPUS

Water works Department maintain the water bodies and distribution system in the campus. The ground water is pumped into storage tanks located at different places in the campus. There are few numbers of overhead storage tanks. The water is distributed through well laid pipe network. Drinking water after treating in RO plant is supplied through a separate set of distribution pipes and water for all other purpose is supplied through another set of distribution pipes. Entire distribution system is well supervised by Civil works people to ensure that there are no leakages and wastages of precious water through joints, valves etc. Waste usage of water is reduced using low pressure flushes. All the stakeholders of the college are well educated to use water economically and efficiently. Also, wash basins are available at each laboratory, staffrooms and department. Water facilities are available in the entire college without any interruption. The RO plants are periodically cleaned and maintained by assigning a specific technician in the maintenance department. The University have the cleaning schedule of all overhead water storage tanks. The water works section of the Engineering Department of S.V. University is regularly checking and cleaning all the tanks once in six months.





Water Tanks 13.62867/ 79.40366



Water Pumping System 13.63306/ 79.39824



RO-PLANT



WATER SUPPLY SYSTEM

2.6 Energy Audit

Energy is one of the major inputs for the economic development of any country. The fundamental goal of energy management is to produce goods and provide services with the least cost and least environmental effect. Also it can be said as “the strategy of adjusting and optimizing energy, using system and procedure so as to reduce energy requirements per unit of output while holding constant or reducing total costs of producing the output from these systems”. The energy audit is key to a systematic approach for decision making in the area of energy management. It attempts to balance the total energy inputs with its use, and serve to identify all the energy streams in a facility.

According to Energy Conservation Act, 2001, Energy Audit is the verification, monitoring, and analysis of the use of energy including submission of a technical report containing recommendations for improving energy efficiency with cost-benefit analysis and an action plan to reduce energy consumption.

Energy resources utilized by all the departments, support services and the administrative buildings of Sri Venkateswara University, Tirupati, Andhra Pradesh campus include electricity and liquid petroleum. Major use of the energy is at office, canteen, hostel and laboratories, for lighting, transportation, cooking and workshop instruments. Sri Venkateswara University has installed solar power plant having a capacity of 1.75 MW. Electricity is also supplied to the University campus by Andhra Pradesh Southern Power Distribution Company Limited (APSPDCL).



Fig.: Solar Panel at SVU Administrative Building



Fig.:Solar Panel at SVU Library



Fig.: Solar Panel at Prakasam Bhavan



Fig.: Solar Panel at SVU Hostels

In Academics and Research, Solar dryer facility is available in the Department of Home Science. Food technology students and scholars conducted research projects using solar dehydration technology. Drying foods using solar energy helps in retaining the colour, Flavour and nutritional value to a large extent. It can minimize cost, wastage and increase the productivity in terms of quality and quantity. Hands on training was given to the students with the resource persons on solar dehydration. Various foods and food products were developed. The students undergone training programmes and internship in Society for Energy, Environment and Development (SEED) Hyderabad.

Solar dryers require a certain investment for the set-up of the appliance, but no expenditures for the fuel. The basic function of a solar dryer is to heat air to a constant temperature with solar energy, which facilitates extraction of humidity from foods inside a drying chamber. Ventilation is enabled at a constant rate through defined air inlets and outlets, small solar ventilators or temperature difference, either due to exposition or vertical height. In direct sun driers the food is put in boxes with a transparent lid. Additionally, the temperature in the drier is raised due to the greenhouse effect and the air exchange is regulated by vents. The food is not exposed to direct sunlight in indirect sun driers as the fresh air is heated separately from the food chamber. This method is preferable for drying foods

which lose nutritional value when exposed to direct sunlight. Hybrid driers combine solar energy with a fossil fuel or biomass fuel. Solar drying has many advantages over open traditional drying like; Safe & hygienic, Free from insect and bird contamination, Clean & dust free products, more uniform quality products, Uniform color, texture, and appearance of the product, evenness in drying, moisture control to optimum levels, Nutrient retention especially beta carotene, yields high quality Products with better shelf life of the products.

Solar energy generated by solar panels are exported to the grid of electricity distribution utility of Southern Power distribution company of Andhra Pradesh Ltd. Direct savings in electricity bills are availed from electricity distribution utility on monthly basis. Workshops on ‘Green Power Technology in Power Grid: Issues, Challenges and Control’ was taken place in the university.

The Energy and electricity audit aimed to cover the aggregate consumption of Electrical and Natural gas energy within the Sri Venkateswara University campus including academic and administrative blocks. In different hostels, LPG cylinders are primarily used for cooking purposes and the number of uses was also counted. Domestic LPG connections were not included in the present study. Within the campus, no other fossil fuel like coal-fire or fire wood, etc., based energy is used.

All the buildings of the University are designed and constructed in such a way that during daytime no electricity is consumed for lighting of tube lights and other electric lights. Proper day light and ventilation facilities are available for every building.

Fossil fuels (such as petrol, diesel) contribute significantly to environmental pollution through emission of greenhouse gases into the atmosphere mainly as carbon dioxide. Vehicular emissions are the main source of carbon emission in the campus, hence to document the various means of transportation that is practiced by the university members is important.

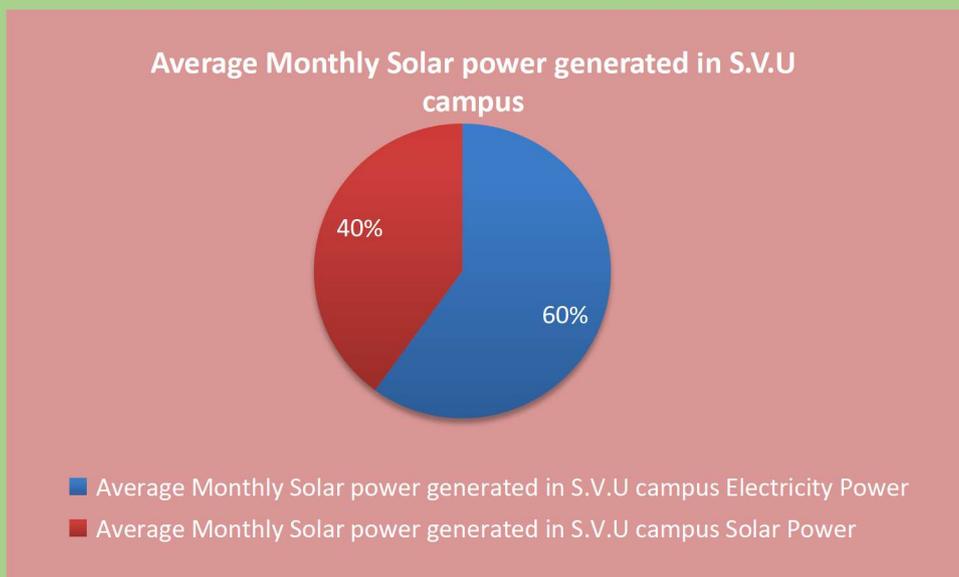


Fig: Monthly Solar power generated within S.V.U Campus

Fossil fuels (such as petrol, diesel) contribute significantly to environmental pollution through emission of greenhouse gases into the atmosphere mainly as carbon dioxide. Vehicular emissions the main source of carbon emission in the campus, hence to document the various means of transportation that is practiced by the university members is important. The fuel energy audit determines the approximate use of petrol or diesel by the vehicles inside the university. It also includes the efforts taken by the university to conserve the fuel. The conventional source of fuel for the vehicle is petrol and diesel. Maximum students, teaching and non-teaching staff of university and visitors use two wheeler and four wheeler vehicles. So, the data regarding fuel utilization for students, teaching and non-teaching staff of university and visitor are monitored in the study.

Carbon Foot Print Analysis

Total number of 2 wheelers used	1147
Total number of electrical 2 wheelers	41
Total number of 4 wheelers used	154
Number of electrical four wheelers	04
Average consumption of fuel per month	
a. By two wheelers	458 lts
b. By four wheelers	135 lts

Total consumption of fuel per year – 7116lts

Awareness programmes on effects of CO₂ emission are conducted to encourage usage of electric bikes and cars to reduce on campus air pollution.

2.7 Solid Waste Audit

Solid waste is the unwanted or useless solid material generated from the human activities in residential, industrial or commercial area. Solid waste management reduces or eliminates the adverse impact on the environment and human health. A number of processes are involved in efficiently managing waste for an organization. It is necessary to manage the solid waste properly to reduce the load on waste management system. Unavailability of proper waste management practices may lead to environmental pollution. A waste management audit helps educational institutes to efficiently and responsibly dispose of the waste that is generated every day. By designing a more efficient waste disposal program through a waste audit, we can enhance recycling practices.

Solid waste generation and its management is a burning issue in current days. The rate of generation of solid waste is very high and yet we do not have adequate technology to manage the generated waste. Unscientific handling of solid waste can create threats to public health and environmental safety issues. Thus, it is necessary to manage the solid waste properly to reduce the load on waste management system. The purpose of this audit is to find out the quantity, volume, type and current management practice of solid waste generation in Sri Venkateswara University campus. This report will help for further solid waste management and to go for green campus development. The waste generated from Sri Venkateswara University campus includes paper waste, plastic waste, biodegradable waste, construction waste, glass waste, biomedical waste and other wastes.

Table: Category wise solid waste generation at University (kg / month)

Category of waste	Paper waste	Plastic waste	Biodegradable waste	Construction waste	Glass waste	Other waste	Total waste kg/month	Total waste kg/year
Quantity	784	75	2985	123	23	132	4122	49464
percentage	19.02	01.82	72.41	02.98	00.55	03.20	100	



Fig. : Graph - Solid waste generation at university campus

Solid Waste Management

Waste is collected and segregated properly. Solid waste is divided into two categories: dry waste and wet waste. Wet waste consists of bio-degradable materials, Dry waste consist of bio-degradable and non-biodegradable materials. Students, faculty, and staff are aware and educated on proper waste management practices of recycling and disposal of plastic waste, paper waste and food waste. Solid and liquid residual waste generated in men and women hostels has been effectively disposed. SV University generated income of Rs.3.0 lakhs/ year through solid and liquid residual waste disposal and also Rs.67.0 lakhs generated by selling paper.

In the University campus premises, Blue and Green covered/ pedal-pushed dustbins are placed for waste collection. Waste bins are provided on each floor, in staff rooms, laboratories, washrooms, kitchen and in campus area. The waste materials like glass, metals, wrappers, papers, plastics, old newspapers, used papers like journal files and workshop scrap etc, are given for recycling to external agencies, where they are segregated and disposed/recycled according to the nature of the waste.

University strictly follows the guidelines regarding plastic usage and has prohibited the use of single use plastic such as carry-bags, glasses, spoons etc, in the campus. As per the College guidelines, Canteen Contractors are prohibited to use plastic cutlery, instead paper plates and wooden spoons are used. The waste from the canteens and other areas are channeled into a reservoir where they are treated biologically before the water goes out into river bodies. Metal scrap is segregated separately and sent for recycling units.



Fig : Eco Friendly Environment

The solvents used in the laboratories are reused after distillation to minimize the use of solvents. The waste solvents are separated as halogenated and non-halogenated and transferred to plastic containers. To prevent heat generation and gas evolution or other reaction, compatibility of the waste is checked carefully.

To prevent accidental spillage of chemicals the laboratory wastes are subjected to process through three stages of waste management. Stage-I gravel, Stage-II sand, Stage –III coal. The three chambers are replenished with new materials after a period of six months.

There is a separate room for the Nuclear Laboratory where radiation hazard is displayed for safety measures. The harmful radiations are radiated by appropriate routes. Containers containing radioactive elements are properly lead sealed.

Wearing appropriate lab coats, gloves and face shields while working with nanomaterials. The hazardous chemical wastes are kept in separate containers. Later they are filtered and drained out.

Biodegradable waste consists of Leaf litter, food waste, vegetable and fruit waste etc. is decomposed in composting, vermicomposting and bio-gas units established in the University campus.



Fig : Biogas Plant

Other dry waste is collected by Waste collection vehicles of Tirupati Municipal Corporation. Overall University campus is maintained neat and clean throughout. Various awareness programmes were organized in and around campus for effective management of solid waste.

2.8 E-waste generation and management on University Campus

Generation of e-waste is apparent in every educational institute. Especially, at the university level where there are several equipments and instruments used for administrative as well as for scientific execution. Computers, Printers and Xerox machines are must for the administrative and research work. The wires required for the connectivity also gets included in the e-waste. More usage of these electronics well as electrical materials generates huge amount of e-waste. Similarly, various scientific equipments and instruments get worn out with time. These too contribute to the e- waste.

E-waste include monitor, CPU, key board, electric wire, printer. Paperless work increase load on computer and therefore it is a need to reduce e-waste by repairing all this electric equipment. There is a need to reuse and recycling of electronic equipments and material. E-waste is collected and stored in University campus and sent to authorised vendor for recycling/ disposal under buy-back policy.



Fig : E-waste collection

f.HAZARDOUS CHEMICALS AND RADIOACTIVE WASTE MANAGEMENT

Campus is free from any kind of hazardous waste. Ideally, collection, transportation and proper handling of chemicals begin with understanding the potential hazards related to their use. All stakeholders, especially from Academic departments and laboratories are responsible for disseminating information on hazardous materials being used in the facility. Various types of chemicals are used in chemistry labs for number of experiments in the University. Some might be harmful while others may not. Some of the dangerous chemicals in lab are Acetonitrile, Chloroform, Dimethyl sulfoxide, Formaldehyde, 2-mercaptoethanol, Methanol, Sodium Azide, Sodium Hydroxide, Sodium hypochlorite, and Tetrahydrofuran. Highly toxic chemicals such as Arsenic trioxide, Chlorine, Hydrogen cyanide, Nitrous oxides, Phosgene, Potassium cyanide, Sodium arsenate, and Sodium cyanide which are dangerous and hence they are handled with care.

General procedures while working with hazardous chemicals -

1. Personal behaviour.
2. Minimising exposure to hazardous chemicals.
3. Avoiding Eye injury.
4. Avoiding ingestion of hazardous chemicals.
5. Avoiding inhalation of hazardous chemicals.
6. Avoiding injection of hazardous chemicals.
7. Minimising skin contact.
8. Storage of chemicals.
9. Use & maintenance of equipment and glassware.
10. Working with scaled-up reactions.
11. Responsibility for unattended experiments & working alone.
12. Chemistry demonstration & Magic shows.
13. Responding to accidents and emergencies.
14. Handling the accidental release of hazardous substance.

Four fundamental principles followed in the labs are -

1. Plan ahead: Determine the potential hazards associated without an experiment before beginning.
2. Minimize exposure to chemicals:

Do not allow laboratory chemicals to come in contact with skin. Use laboratory chemical hoods and other ventilation devices to prevent exposure to airborne substance whenever possible.

3. Do not underestimate hazards or risk:

Assume that any mixture of chemicals will be more toxic than its most toxic component. Treat all new compounds and substances of unknown toxicity as toxic substances.

4. Be prepared for accident:

Before beginning an experiment know what specific action to take in the event of accidentally release of any hazardous substance. Post telephone number to call in an emergency or accident in a prominent location. Know the location of all safety equipment and the nearest fire alarm and telephone.

Be prepared to provide basic emergency treatment. Keep your co-workers informed of your activities so they can respond appropriately.

Common Laboratory chemicals & their Hazard class-

1. Oxidizers: inorganic Nitrates, Nitrites, permanganates, chlorates, perchlorates, iodates, periodates, persulfates, chromates, hypochlorite, peroxides, sodium nitrates, sodium nitrites, Ammonium persulfate, sodium peroxides.
2. Oxidizing acids: Nitric acid, perchloric acids, Hydrogen peroxide, periodic acid, chromic acids.
3. Flammable liquids: methanol, ethanol, acetone, xylene, toluene, ethyl acetate, tetrahydrofuran, ethyl ether, Benzene, Dimethylformamide, Hexane.
3. Inorganic bases: metal hydroxides such as sodium, potassium, calcium, nickel hydroxide Ammonium hydroxide.

4. Organic bases: Amines such as Ethanolamine, tributylamine.
5. Acid flammable liquids: Glacial acetic acid, acetic acid, acetic anhydride, formic acid, propanoic acid.
6. Organic acids: Butyric acid, pentanoic acid.
7. Inorganic acids: Hydrochloric acid, Sulfuric acid, Phosphoric acids, Hydrofluoric acid.
8. Poisons: Acrylamides, chloroform, Formaldehyde, phenol, Glutaraldehyde, methylene chloride,
9. Toxic metals such as silver chloride, mercury acetate, barium carbonate, lead acetate, cadmium sulfate.
10. Cyanides
11. sulfides
12. Pyrophorics (air reactives)



Hazardous Chemicals Kept Separately in the Laboratories

2.9 Biodiversity Audit

Carbon is the basis of life on mother Earth. It is incorporated into the plants through photosynthesis, consumed by animal species through the food, present in the form of carbon dioxide (CO₂) in the atmosphere, locked into the rocks as limestone and compressed into the different fossil fuels such as coal and oil. As CO₂ level in the atmosphere continue to increase, most climate designs or project that the oceans of the world and trees will keep soaking up more than half CO₂. The plants on land and in the sea, taken up carbon by over many years increased the percentage discharged during decay, and this increased carbon became locked away as fossil fuels beneath the surface of the planet.

The starting of the 21st century brought growing concern about global warming, climate change, food security, poverty and population growth. In the 21st century more carbon has been released into the atmosphere than that has been absorbed. CO₂ is a principle component causing global warming. Atmospheric carbon dioxide levels have increased to 40 % from preindustrial levels to more than 390 parts per million CO₂. On this background it is a need of time to cover the research areas interrelated with climate change.

The “Carbon Sequestration and Green cover inventory” is a current status of tree cover and vegetation carbon storage assessment of area under Sri Venkateswara University campus. In an era of climate change and global warming carbon emission, carbon footprints, carbon sequestration, adaptations, mitigation are the keywords in academia. Carbon sequestration is a process of converting atmospheric carbon i.e. CO₂ into other sinks of carbon such as vegetation, soil, ocean etc. in various forms to mitigate global warming audit is one of the important clauses of Kyoto Protocol.

While transforming ourselves from regional university to global university it is a responsibility of such universities to face the global future challenges and try to find out possible solutions for them. It is a social and environmental responsibility of Government Institutes, Universities, National and International Organizations to respond positively for various global issues at local level and should percolate the generated knowledge in to the society. Global warming and climate change are current environmental issues need to be addressed scientifically and efficiently. As Universities are provided with skillful human resource supported by analytical infrastructure, it is our duty to bring such ideas in practice. While understanding the call of time the Department of Botany and Environmental Science, Sri Venkateswara University has decided to enumerate the green cover of Sri Venkateswara University campus.

Table : List of plant species on Sri Venkateswara University Campus

S. NO	COMMON NAME	BOTANICAL NAME	TYPE/ USE
1.	Custard Apple	<i>Annona squamosa</i> L. (Var.name:seethapalam)	Fruit Me yielding,
2.	False ashoka	<i>Polyalthia longifolia</i> (Sonner) Thw. (Naramamidi) -60	Wind breaker
3.	False ashoka	<i>Polyalthia longifolia</i> Hook. & Thom. Var. pendula (Ontikomma naraamamidi) -51	Wind breaker
4.	Snuff-Box Tree	<i>Oncoba spinoa</i> Forsk. (Line gulabi) - 01	Medicinal
5.	Red silk-Cotton tree	<i>Bombax ceiba</i> L. (Buruga) -03	Fibre yielding
6.	Bael	<i>Agle marmelos</i> (L.) Corr. (Maredu) - 01	Medicinal
7.	Tree of heaven	<i>Ailanthus excelsa</i> Roxb. (Pedda vepa) -01	Matchstick industry
8.	Neem tree	<i>Azadirachta indica</i> A. Juss. (Vepa) - 150	Medicinal
9.	Indian mahogany	<i>Chukraia tabularis</i> A. Juss. (Konda vepa) -01	Medicinal
10.	Indian rose wood	<i>Somyda febrifuga</i> (Roxb.) A. Juss. (Somi) -02	Medicinal, Wood yielding
11.	Ceylon satinwood or East Indian satinwood	<i>Chloroxylon swietenia</i> DC. (Billudu) -08	Wood yielding
12.	Ceylon Tea	<i>Cassine glauca</i> (Rottb.) Kuntz. (Neridi) -06	Medicinal
13.	Indian jujube	<i>Ziziphus mauritiana</i> Lam. chettu) -18 (Regi 1)	Fruit yielding
14.	Kath Ber	<i>Ziziphus xylopyrus</i> (Retz.,) Willd. (Gotti) -03	Medicinal

15.	Notched Soapnut Leaf	<i>Sapindus emarginatus</i> Vahl. (Kunkudu) -08	Medicinal
16.	Mango	<i>Mangifera indica</i> L. (Mamidi) -04	Fruit yielding
17.	Indian ash tree	<i>Lannea coromandelica</i> (Houtt.) Mann. (Gumpana) -60	Plywood making
18.	Flame-of-the-forest	<i>Butea monosperma</i> (Lam.) Taub. (Modhuga) -02	Medicinal
19.	Indian rosewood	<i>Dalbergia latifolia</i> Roxb. (Iridi) -02	Wood yielding
20.	Mexican Lilac	<i>Gliricidia sepium</i> (Jacq.) Kunth ex Walp. (Seema kanuga) -10	Rat poison
21.	Indian and Pongame beech oiltree.	<i>Pongamia pinnata</i> (L.) Pier. (Kanuga) -136	Medicinal , Biodiesel preparation
22.	Malabar kino	<i>Pterocarpus marsupium</i> Roxb. (Yegi) -02	Medicinal
23.	Red Sanders	<i>Pterocarpus santalinus</i> L.f. (Errachandhanam) -16	Medicinal, Wood yielding
24.	Orchid Tree	<i>Bauhinia purpurea</i> L. (Deva kanchanam) -02	Medicinal
25.	Bidi leaf tree	<i>Bauhinia recemosa</i> Lam. (Ari chettu) -01	Medicinal
26.	Red cassia, Ceylon senna	<i>Cassia roxburghii</i> DC. (Rela) -54	Medicinal
27.	Siamese cassia	<i>Cassia siamea</i> L. (Seema thangedu) -33	Medicinal
28.	Royal Poinciana	<i>Delonix regia</i> (Boj. Ex Hook.) Rafin. (Thurai) -12	Ornamental
29.	Yellow Copper pod Flame/	<i>Peltophorum pterocarpum</i> (DC.) Baker ex Heyne. (Konda chintha) -272	Ornamental
30.	Tamarind	<i>Tamarindus indica</i> L. (Chintha) -59	Cuisines , Medicinal

31.	Auri,	<i>Acacia auriculiformis</i> A. Cunn. ex Benth. (Australia thumma) -02	Ornamental
32.	White-bark acacia	<i>Acacia leucophloea</i> (Roxb.) Willd. (Thella thumma) -02	Wood
33.	Lebbeck /Woman's tongue tree	<i>Albizia lebbeck</i> (L.) Benth. (Bagichettu) -16	Forage , Wood
34.	Jumbay, white leadtree,	<i>Leucaena latisiliqua</i> (L.) Gillis. (Subabulu) -07	Multipurpose tree
35.	Badminton ball tree	<i>Parkia biglandulosa</i> Wt.& Arn. (Banthi thumma) -02	Ornamental
36.	Manila Tamarind	<i>Pithecellobium dulce</i> (Roxb.) Benth. (Cheema chintha) -01	Food, Traditional medicine
37.	Chilean mesquite	<i>Prosopis chilensis</i> (Molina) Stuntz. (Sarkar thumma) -01	Shade tree
38.	Rain tree	<i>Samanea saman</i> (Jacq.) Merr. J. Wash. (Nidraganneru) -19	Shade tree
39.	Arjuna/ Arjun tree	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wt. & Arn. (Tellamaddhi) -16	Silk production (Tassar)
40.	Baheda	<i>Terminalia bellirica</i> (Gaertn.) Roxb. (Thandra) -02	Medicinal
41.	Indian almond	<i>Terminalia catappa</i> L. (Badam chettu) -02	Food/ wood/ Ornamental
42.	Southern blue gum	<i>Eucalyptus globulus</i> Labill. (Neelagiri thylam) -52	Essential oil/ Wood
43.	Common guava	<i>Psidium guajava</i> L. (Jama chettu) -01	Food, Traditional medicine
44.	Jamun	<i>Syzygium cumini</i> (L.) Skeels. (Neredu chettu) -60	Food medicine
45.	Gummy Gardenia	<i>Gardenia gummifera</i> L.f. (Bikki) -02	Medicinal
46.	West Indian jasmine	<i>Ixora acuminata</i> Roxb. (Tella ramabanam) -02	Ornamental

47.	Aal or Indian mulberry	<i>Morinda pubescens</i> J.E. Smith var. pubescens Verdc. (Maddi) -56	Dye yielding
48.	Torch tree	<i>Ixora pavetta</i> Andr. (Korivi chettu) - 03	Ornamental
49.	Madhūka,	<i>Madhuca longifolia</i> (K oen.) Macbr. Var. latifolia (Roxb.) A. Cheval. (Ippa) -08	Silk production (tassar) and medicinal
50.	Sapodilla	<i>Manilkara zapota</i> (L.) P. Royen. (Sapota) -01	Fruit yielding
51.	Spanish cherry	<i>Mimusops elengi</i> L. (Pogada) -05	Medicinal
52.	Caterpillar tree	<i>Plumeria alba</i> L. (Tella devaganneru) - 08	Ornamental, Medicinal
53.	Pinwheel flower,	<i>Tabernaemontana divaricata</i> L. (Nandivardhanam) -02	Ornamental, Medicinal
54.	Small Pinwheel flower	<i>Ervatamia divaricata</i> (L.) Burkill (Sanna nandivardhanamu) -02	Ornamental, Medicinal
55.	Sweet Indrajao	<i>Wrightia tinctoria</i> (Roxb.) R. Br. (Reppala) -28	Dye yielding, Medicinal
56.	Yellow oleander	<i>Cascabela thevetia</i> (L.) Lipp. (Patcha ganneru) -04	Poisonous
57.	Indian Cherry	<i>Cordia dichotoma</i> Forst. (Iriki) -01	Traditional medicine
58.	Geiger tree	<i>Cordia sebestena</i> L. -01	Ornamental
59.	Wavy trumpet flower	<i>Dolichandrone atrovirens</i> (Roth) Spr. (Oddi) -02	Ornamental
60.	Jacaranda, blue jacaranda	<i>Jacaranda acutifolia</i> Humb . & Bonpl. (Swarna sundari) -01	Ornamental, Wood
61.	Sausage tree	<i>Kigelia africana</i> (Lam.) Benth. In Hook. (Enugu thondamu) -06	Poisonous
62.	Tree jasmine or Indian cork tree	<i>Millingtonia hortensis</i> L.f. (Manu malli) -05	Ornamental

63.	African tulip tree	<i>Spathodea companulata</i> P.Beauv. (Yerra neeru budda) -01	Ornamental
64.	Silver Trumpet Tree	<i>Tebebuia argentea</i> (Bur. & K. Schum.) Britt. -03	Ornamental
65.	Rosy trumpet tree	<i>Tebebuia rosea</i> (Bertol.) DC. -05	Ornamental
66.	Yellow trumpetbush	<i>Tecoma stans</i> (L.) Kunth. (Pasupu ganneru) -01	Ornamental
67.	Desert teak	<i>Tecomella undulata</i> (Sm.) Seem. -02	Wood yielding
68.	Teak	<i>Tectona grandis</i> L.f. (Teku) -09	Wood yielding
69.	Helicopter tree	<i>Gyrocarpus asiaticus</i> Willd. (Kummara poliki) -02	Ornamental
70.	Great bougainvillea,	<i>Bougainvillea spectabilis</i> Willd. -03	Ornamental, Tribal Medicine
71.	Indian sandalwood	<i>Santalum albam</i> L. (Srigandhamu) – 02	Wood, Medicine
72.	Indian gooseberry	<i>Phyllanthus emblica</i> L. (Nellikaya) - 07	Culinary, Traditional medicine
73.	Indian elm	<i>Holoptelea integrifolia</i> (Roxb.) Planch. -09	Cheap wood, Medicinal
74.	Banyan	<i>Ficus benghalensis</i> L. -44	Cultural significance
75.	Sacred Fig	<i>Ficus religiosa</i> L. (Ravi chettu) -17	Traditional medicine
76.	The common fig	<i>Ficus carica</i> L. (Atthi chettu) -01	Food, Folk medicine
77.	Australian pine tree or whistling pine tree	<i>Casurina littorea</i> L. (Sarugudu) -02	Wood, Ornamental
78.	Traveler's palm	<i>Ravenala madagascarensis</i> Sonner. (Panka arati) -01	Ornamental
79.	Indian shot	<i>Canna indica</i> L. (Metta thamara) -02	Ornamental

80.	Thorny bamboo	<i>Bambusa arundinacea</i> (Retz.) Roxb. (Veduru) -02	Wood for thatching
81.	Toddy Palm	<i>Borassus flabellifer</i> L. (Tati chettu) - 01	Edible, Palm wine
82.	Cuban royal palm	<i>Roystonea regia</i> (Kunth) O.F. Cook. - 20	Ornamental
83.	Yellow Cane Palm	<i>Dypsis lutescens</i> (H.W endl.) Beentje & J. Dransf. -14	Ornamental



Custard Apple



Indian mahogany



Indian ash tree



Flame-of-the-forest



Red cassia, Ceylon senna



Arjuna/ Arjun tree



Sweet Indrajaio



Rosy trumpet tree



Silver Trumpet Tree



Geiger tree



Indian elm



Cycas beddomei



Couroupita guianensis (Cannonball tree)



Indian sandalwood

Fig. : Plant species on Sri Venkateswara University Campus

In Ecology, the mass of living biological organism in a given area or ecosystem at a given time is called as biomass. Biomass can refer to species biomass and community biomass. The species biomass is the mass of one or more species. The community biomass, which is the mass of all species in the community. It includes microorganisms, plants or animals. The mass can be defined as the average mass per unit area, or as the total mass in the community.

To estimate the biomass of each individual tree species non-destructive method was used. To calculate the circumference Diameter at Breast Height (DBH) can be determined by measuring tree Girth at Breast Height (GBH), approximately at 1.3 meter from the ground. The Girth at Breast Height of trees having diameter which greater than 10 centimeters were measured directly by measuring tape.

To maintain green cover and carbon sequestration potential of the University following precautionary measures were taken. Plantation of endemic species like *Pterocarpus santalinus*, *Cycas beddomei*, *Boswellia ovalifoliata*, *Syzygium cumini* etc were planted to conserve native biodiversity. The plantation of tree species like *Acacia nilotica subsp. indica*, *Albizia lebbek*, *Azadirachta indica*, *Citrus aurantium* works as green belt which can maintain the ecological balance in the environment as well as act as sink for the harmful gases and improve air quality. Plantation activity is taken every year to increase the green cover on the University campus. Avoided the plantation of exotic species like *Casuarina*, which is fast growing species with less ecological values.

India has large geographical size and variety of climate and habitats. Wild animals constitute great national resources. Preservation and protection of wildlife is important from the ecological point of view. As per the UNESCO's Man and Biosphere program, the government of India has established the Seshachalam Biosphere Reserve on 20th September,2010. The reserve is the first biosphere reserve in Andhra Pradesh and the 17th in India. By size, it is the 9th largest in India.

Sri Venkateswara University is located at foot hills of Tirumala of Seshachalam hill range a Biosphere reserve spread over in area of 480 acres with lush green campus possessing more than ten thousand different kinds of plants. At North side of the campus are seven peaks of, Eastern Ghats namely Seshadri, Neeladri, Garudadri, Anjanadri, Vrushabadri, Narayanadri and Venkatadri. Being covered with hilly region and green luxurious coverage the Sri Venkateswara University harbours different species of birds, insects, reptiles, deers and rabbits etc. In addition to above plant species a diversified fauna has been observed and documented.



Greater Coucal *Centropus sinensis*



Asian Koel Eudynamis scolopaceus



Common Hawk-Cuckoo

Hierococcyx varius



White-throated Kingfisher *Halcyon smyrnensis*



Rose-ringed Parakeet *Psittacula krameri*



Common Tailorbird *Orthotomus sutorius*



Common Tailorbird *Orthotomus sutorius*



Black-headed Cuckooshrike *Lalage melanoptera*

3. SITE STUDY

3.1 On-Site Observations Study

The following listed are some of the positive site elements which are beneficial to the University in terms of tangible and intangible benefits.

Location-The Sri Venkateswara University, Tirupati-517 502, Andhra Pradesh, India and falls under the Tirupati Municipal Corporation, the largest University in the Rayalaseema district of Andhra Pradesh.

Neighborhood context- The premises is surrounding by open spaces and Residential spaces on the immediate surroundings of the site, there are educational institutes and site is close to National Highway 44 and is based in the Tirupati city which is famous for Handicrafts like Woodcarving and Calakari.

Natural Physical features-The premises is centrally situated in the city amidst residential areas and open spaces with appropriate proximity to necessary amenities. There is sufficient appreciation space for entrance.

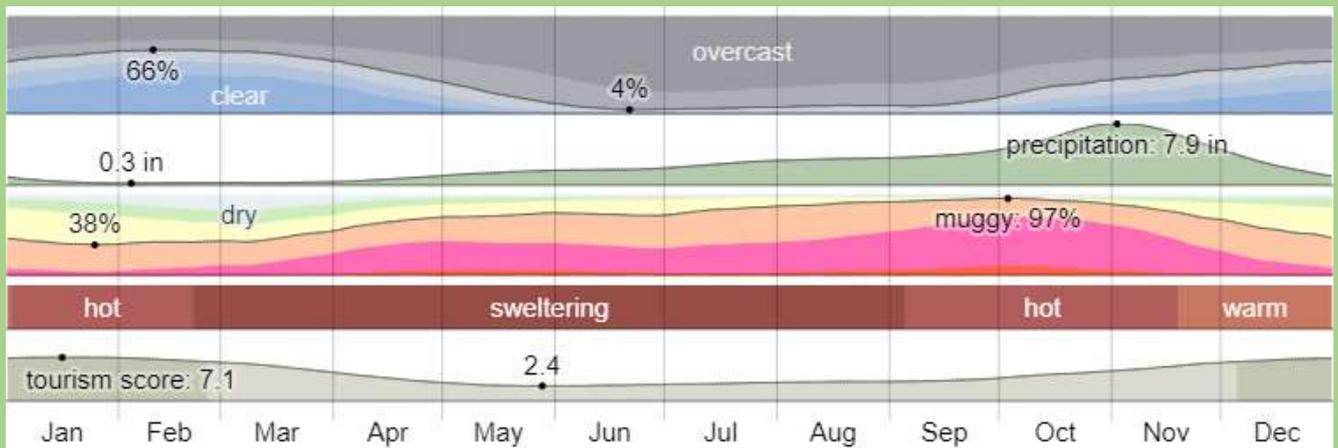
Circulation-There is a smooth transition of pedestrian traffic inside the premises due to the large entrance gate along with pollution free Campus.

Climate-the wet season is hot, oppressive, and overcast and the dry season is sweltering, muggy, and partly cloudy. Over the course of the year, the temperature typically varies from 62°F to 106°F and is rarely below 58°F or above 112°F.

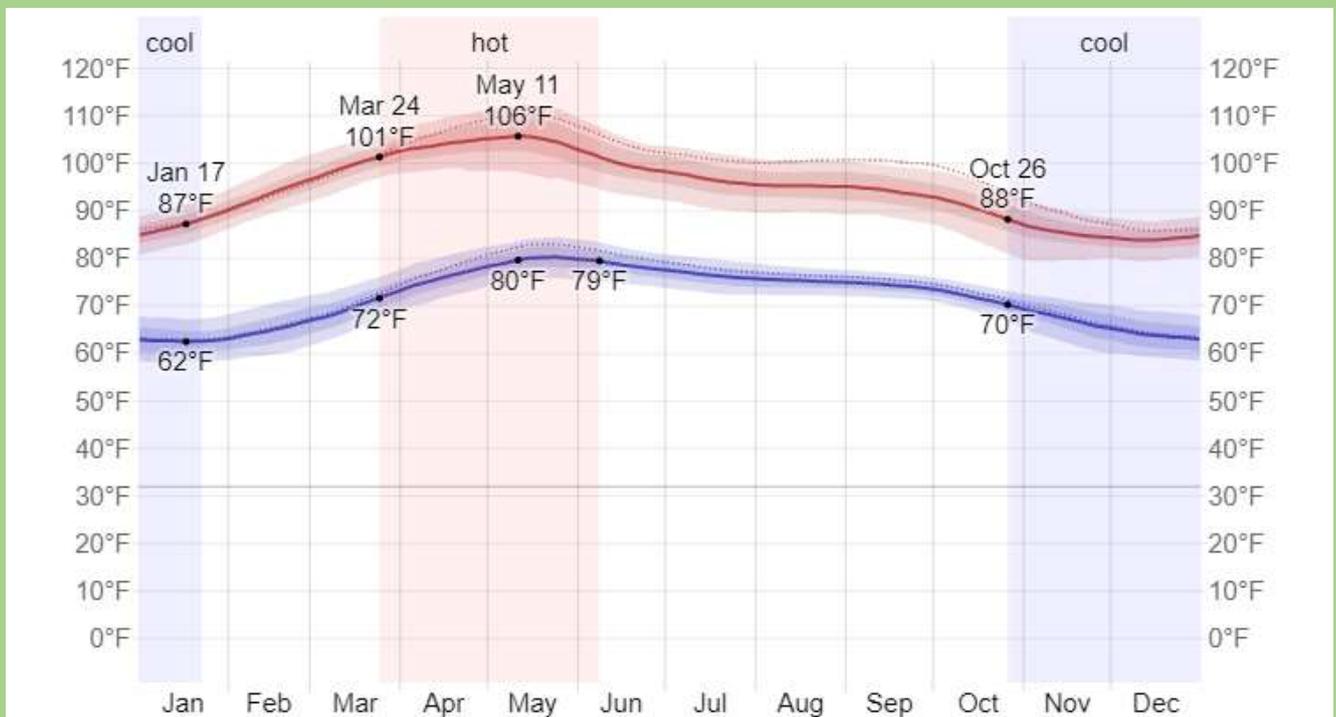
Average Temperature in Tirupati

The hot season lasts for 2.5 months, from March 24 to June 8, with an average daily high temperature above 101°F. The hottest month of the year in Tirupati is May, with an average high of 105°F and low of 80°F.

The cool season lasts for 2.9 months, from October 26 to January 22, with an average daily high temperature below 88°F. The coldest month of the year in Tirupati is December, with an average low of 64°F and high of 84°F.



CLIMATE IN TIRUPATI



Average High and Low Temperature in Tirupati

The daily average high (red line) and low (blue line) temperature, with 25th to 75th and 10th to 90th percentile bands. The thin dotted lines are the corresponding average perceived temperatures.

Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High	87°F	94°F	100°F	104°F	105°F	100°F	97°F	95°F	94°F	90°F	85°F	84°F
Temp.	73°F	78°F	84°F	89°F	91°F	88°F	85°F	84°F	83°F	80°F	75°F	73°F
Low	63°F	65°F	70°F	76°F	80°F	79°F	76°F	75°F	74°F	71°F	67°F	64°F

4. ECOLOGICAL (ENVIRONMENT) AUDIT

4.1 Noise Audit

Macro Level

On the macro level there are open grounds in the site. The approach road too has very minimal traffic. As the University is located amidst the residential areas with immense vegetation. The noise levels do not affect the students and the staff in their day to day functioning.

Micro Level

The University has adequate plantation with cool atmosphere in and around Campus. There are minimum parking areas with restricted automobile entry inside the Campus and students are encouraged to use bicycles in order to maintain Pollution Free Environment. There is no inconvenience or sound problems inside the Premises as the sub-stations are a bit away from the Premises.

4.4 Fire Safety

Fire safety measures well adopted in the University and each floor has an open stair-case without any barriers for fire safety measures. Additional fire safety measures like fire alarms, smoke detectors and fire emergency kit are available in the necessary areas in the Premises.

The building wise summary of fire safety is as follows:

S.No.	Building Name	Floor	Number of Fire Extinguishers
1.	Administrative Building	Ground floor	09
2.	Administrative Building	First floor	11
3.	Administrative Building	Second floor	02
4.	Dr. D.J.Reddy Bhavan Natural Sciences Block	Ground floor	03
5.	Dr. D.J.Reddy Bhavan Natural Sciences Block	First floor	04
6.	Dr. D.J.Reddy Bhavan Natural Sciences Block	Second floor	02
7.	Dr. D.J.Reddy Bhavan Natural Sciences Block	Third floor	01
8.	Vaman Rao Bhavan	Ground floor	03
9.	Vaman Rao Bhavan	First floor	03
10.	Physical Sciences Block	All floors	14
11.	Virology Building	First floor	01

12.	Virology Building	Second floor	01
13.	Microbiology Building	Ground floor	01
14.	Engineering Department	All buildings	30
15.	Praksham Bhavan	All floors	12
16.	Pharmaceutical Sciences Building	All floors	03
17.	CM&CS Building	All floors	09
18.	Library	All floors	06
19.	Health Centre	All floors	07
20.	Computer Centre	All floors	04
21.	Srinivasa Auditorium	Ground floor	06
22.	All Messes	Ground floor	05
23.	Physical Education Block	Ground floor	02
24.	Prof. Choppla Ratnam Bhavan	Ground floor	02
25.	Old MBA Building	All floors	06
26.	Commerce Builing	Ground floor	01
27.	DST Purse Centre Building	All floors	04
28.	IASE	All floors	02
29.	PG Department of Law	Ground floor	01
30.	Biotechnology Building	All floors	03
31.	ORI	All floors	02
32.	DDE	All floors	03
33.	Guest House	All buildings	04
34.	V C Bungalow	All floors	03
35.	Annamaya Bhavan	All floors	02
36.	Geography Block	All floors	01
37.	Hostels	All	12
38.	Post Office	Ground floor	01
39.	Bio Chemistry	All floors	03
40.	SEAPS	All floors	01
41.	Annapoorna Canteen	Ground floor	01
42.	State Bank of India+ DOA	All floors	03
43.	Union Bank of India + MHRD	All floors	03
44.	SVU Campus School	All floors	04
45.	SVU Stadium	Ground floor	04

The University abides to the Rules and Regulations of the Fire Department and equal number of fire extinguishers are provided in all the premises of the University. Red colour buckets with sand are also present in the University.

Study of Site features:

- Route maps to facilitate easy transport
- Usage of bicycles and motor vehicles to reduce pollution
- Water pits to harvest rain water
- Pleasant environment with Ponds and variety of trees
- Acclimatization of land to grow different flowering plants
- Clearing of unwanted plants to control mosquitoes and insects
- Solar panels installation to reduce electricity
- Restricted automobiles entry into the campus at the main gates
- Xerox shop and canteen facilities to in order to allow students to take print outs at the hostels.

Positive site features as per our study:

1. Terrace roof tops:

White colour paintings on the top of roofs to reduce the temperature

2. User friendly movability in premises:

Low height hand rails are available for ease of access

3. Resting places:

Rest places are present in the indoor and outdoor areas for students and the visitors

4. Zero plastic usage

Plastic usage is banned in the University premises strictly to maintain ecofriendly environment

5. Plantation:

Medicinal plants are planted on either sides of the roads in the campus area along with the name boards as a signage to spread awareness among the people to recognize them easily.

6. Cleanliness maintenance:

Yellow, green and blue dustbins are placed in the campus to segregate waste materials beyond their characterization

7. Wheel chairs and ease of transport:

Wheel chair facility is provided in the campus for disabled and senior citizens for their benefit.

8. Transmission signal elimination inside the premises:

The University has eliminated transmission signal in the interiors to protect ecosystem.

Sustainable habitat

Site beautification

a) Low VOC Paints and Adhesives

Whenever the University undergoes repairs or renovations there should be the use of materials with low emissions so as to reduce the adverse health impacts on workmen and the students occupying the space thereafter.

b) Child area – Day care centre

There is a provision where if student's or staff relative who are toddlers can rest in the Day care facility is available for the students or staff children which is located in old MBA building.



SVU DAY CARE CENTRE



Creative Activity





**SRI VENKATESWARA UNIVERSITY
TIRUPATI - 517502**

**ENVIRONMENTAL AUDIT
2019 - 2020**



ACKNOWLEDGEMENT

We, The Environment Audit Team thank Sri Venkateswara University for assigning us an important work on Environmental audit. We appreciate the cooperation of our team for the assigned study, giving us necessary inputs to carry out audit activities.

Our special thanks to:

Hon'ble, Vice-Chancellors of the University; Prof. Avula Damodaram, Ph.D., Prof. G. Janaki Ramaiah I/c, M.A., Ph.D., Prof. G.M. Sundaravalli Rector and Prof. P. Sreedhara Reddy Registrar.

IQAC Members
Teaching & supporting staff

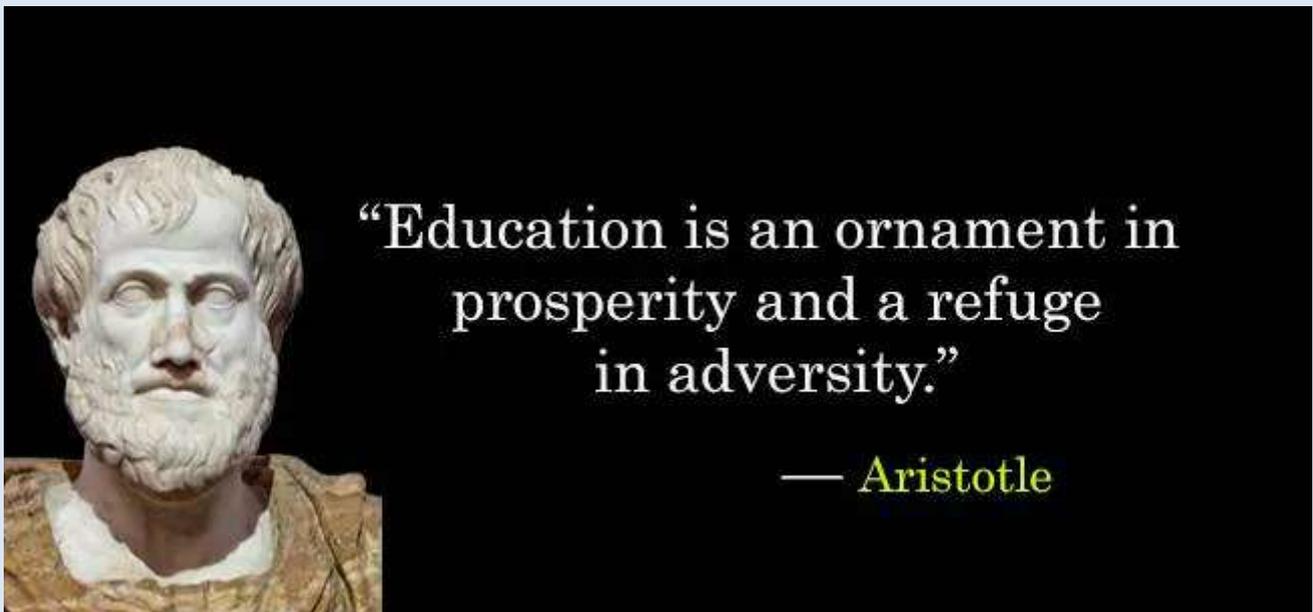
AUDIT COMMITTEE MEMBERS

The Committee members are listed below:

S. No.	Name	Designation
1.	Vice-Chancellor {Prof. Avula Damodaram, Ph.D., Prof. G. Janaki Ramaiah I/c, M.A., Ph.D.,}	Chairman
2.	Registrar (Prof. P. Sreedhara Reddy)	Convener
3.	Rector (Prof. G.M. Sundaravalli)	Member
4.	IQAC Director	Member
5.	NAAC Steering Committee Director	Member
6.	Prof. T. Damodaram Environment Science	Member
7.	Prof. M. Sri Murali Civil Engineering	Member
8.	Prof. B.V. Muralidhar Political Science	Member
9.	Prof. P. Mohan Reddy CM&CS	Member

1.INTRODUCTION

The word “Green” means eco-friendly to produce better environment. Green and environmental Audit is a process of systematic, documented, periodic and objective evaluation of components of environmental diversity with the aim of ensuring readiness in eco-friendly environment and conservation of natural resources in its operations. The process starts with systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of the University. Green audit is a valuable means for a University to determine how and where they are using the most energy or water or other resources. The University can consider how to implement changes and make green savings. It can create healthy consciousness and promotes environmental awareness, values and ethics.



2.GOALS AND OBJECTIVES

It aims to analyse environments within and outside the concerned area, which will have an impact on the eco-friendly atmosphere. It provides staff and students better understanding of Resource management on their area of work.

The main objectives of carrying of green audit:

- To ensure the performance of the Institution with respect to environmental activities they are involved in, in compliance with existing laws and regulations.
- To locate the Green area and the Geographical location of the University – aerial view.
- To document the floral and faunal diversity of the University.
- To develop and follow the waste management system.
- To reduce the energy consumption of the Institution.
- To report the expenditure on green initiatives, carbon foot print.
- To conserve the natural resources.

Areas Of Concern

- Water Management
- Waste Management
- E-Waste Management
- Energy Management

3. ABOUT THE UNIVERSITY

Sri Venkateswara University established in 1954 is located serenely in a picturesque campus at the foot of the seven hills.

The University has been a premier Institution of Higher Learning, Research, Extension and consultancy to cater to the Educational needs and aspirants of the people of the Rayalaseema Region of Andhra Pradesh and has been playing a pivotal role in creating new knowledge, fostering innovation to produce economic value, and addressing the societal needs and challenges.

The University presently houses **52 Departments, 88 Programmes**

22 in Arts,

17 in Sciences,

03 in CM&CS,

6 in Engineering,

2 in Centres,

1 in IASE and

1 in Pharmaceutical Sciences

Constituent Colleges 6,

Affiliated Colleges 187, while 46 Under Graduate Programmes,

NAAC Accredited Colleges 8,

Autonomous College 1,

Colleges with Postgraduate Departments 31,

Colleges with Research Departments 14,

University Recognized Research Institutes/Centers 8

Total area of the university campus –483 acres,

Main campus: 427650.8 sq.mts.,

MAIN CAMPUS CONSISTS

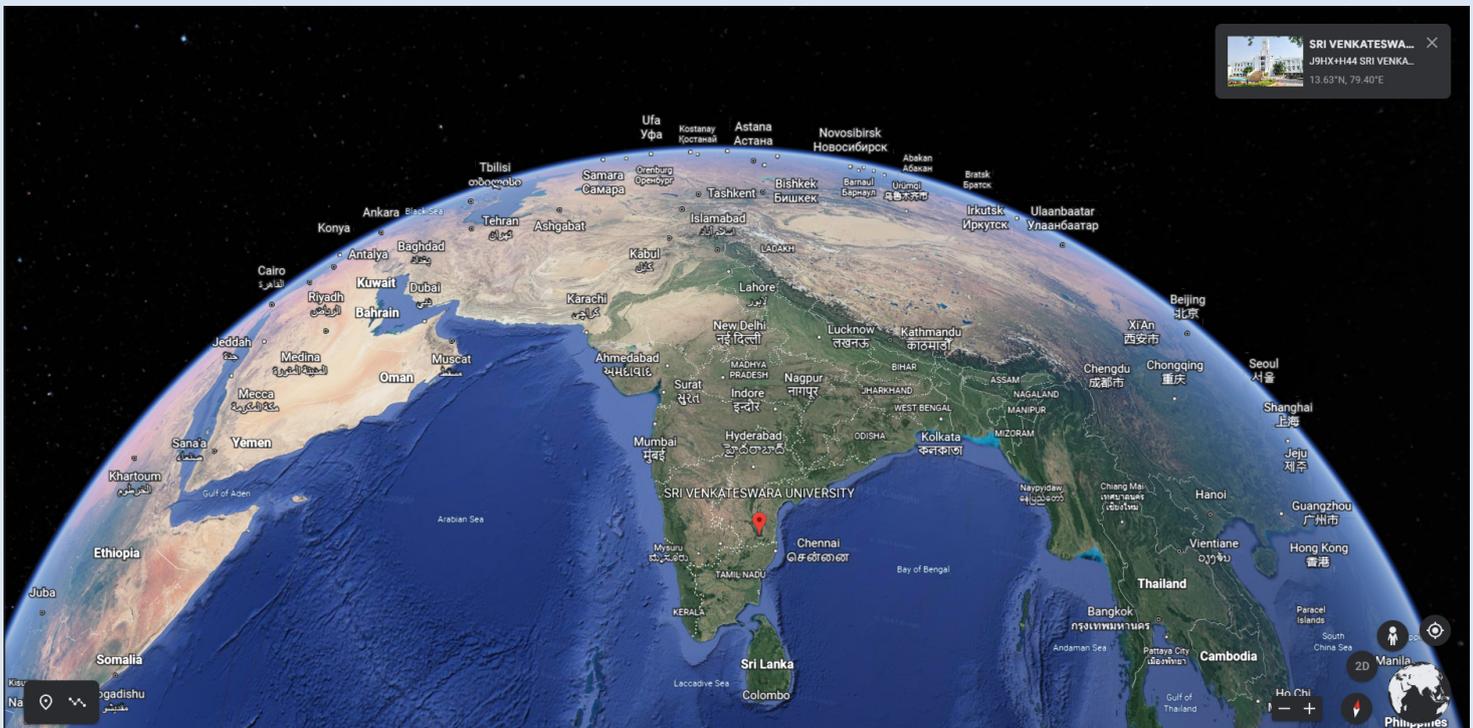
S.No.	BUILDINGS
1.	ADMINISTRATIVE BUILDING
2.	PRAKASAM BHAVAN
3.	DDE BUILDING
4.	JANARDHAN BHAVAN
5.	OLD MBA BUILDING
6.	S.V.U PRESS BUILDING
7.	PHYSICAL SCIENCES BLOCK
8.	NATURAL SCIENCES BLOCK: Dr. D.J. REDDY BHAVAN
9.	GEOGRAPHY SCIENCES BLOCK
10.	ARTS BLOCK: VAMANARAO BHAVAN
11.	CIVIL ENGINEERING BUILDING
12.	ECE BUILDING
13.	CHEMICAL ENGINEERING BUILDING
14.	MECHANICAL ENGINEERING BUILDING
15.	EEE & CSE BUILDING
16.	SVU LIBRARY
17.	HEALTH CENTRE
18.	PHYSICAL EDUCATION
19.	LAW & LIBRARY SCIENCE
20.	ORIENTAL RESEARCH INSTITUTE BUILDING

S.No.	BUILDINGS
21.	POPULATION STUDIES & BIO-TECHNOLOGY– (Lecture theatre Complex)
22.	BIO-CHEMISTRY
23.	MICROBIOLOGY
24.	DST PURSE PROGRAM
25.	VIROLOGY BUILDING
26.	PHARMACY BUILDING
27.	ANDHRA BANK SCHOOL OF MANAGEMENT
28.	COMPUTER SCIENCE
29.	SEAPS (AUDITORIUM OPP)
30.	SVU COMPUTER CENTRE
31.	USIC BUILDING
32.	SVU CAMPUS SCHOOL
33.	ANNAMAYYA BHAVAN
34.	PRAKASAM RECREATION CENTRE
35.	I.A.S.E BUILDING
36.	Prof. CHOPPALA RATHNAM BHAVAN
37.	HOSTEL OFFICES
38.	STATE BANK OF INDIA
39.	UNION BANK OF INDIA
40.	INDIAN POST OFFICE
41.	SVU AUDITORIUM
42.	SVU TARA RAM STADIUM

RESIDENTIAL CAMPUS CONSISTING

S.No.	BUILDINGS
1.	WOMEN HOSTEL PREMISES-I (BLOCKS 1 TO 4)
2.	WORKING WOMENS' HOSTEL PREMISES-II (BLOCKS 5 TO 9)
3.	MENS' HOSTELS (BLOCKS A TO J)
4.	QUARTERS FOR TEACHING AND NON-TEACHING STAFF
5.	QUARTERS FOR WARDENS AND DEPUTY WARDENS
6.	QUARTERS FOR ATTENDERS AND PEONS

UNIVERSITY LOCATION



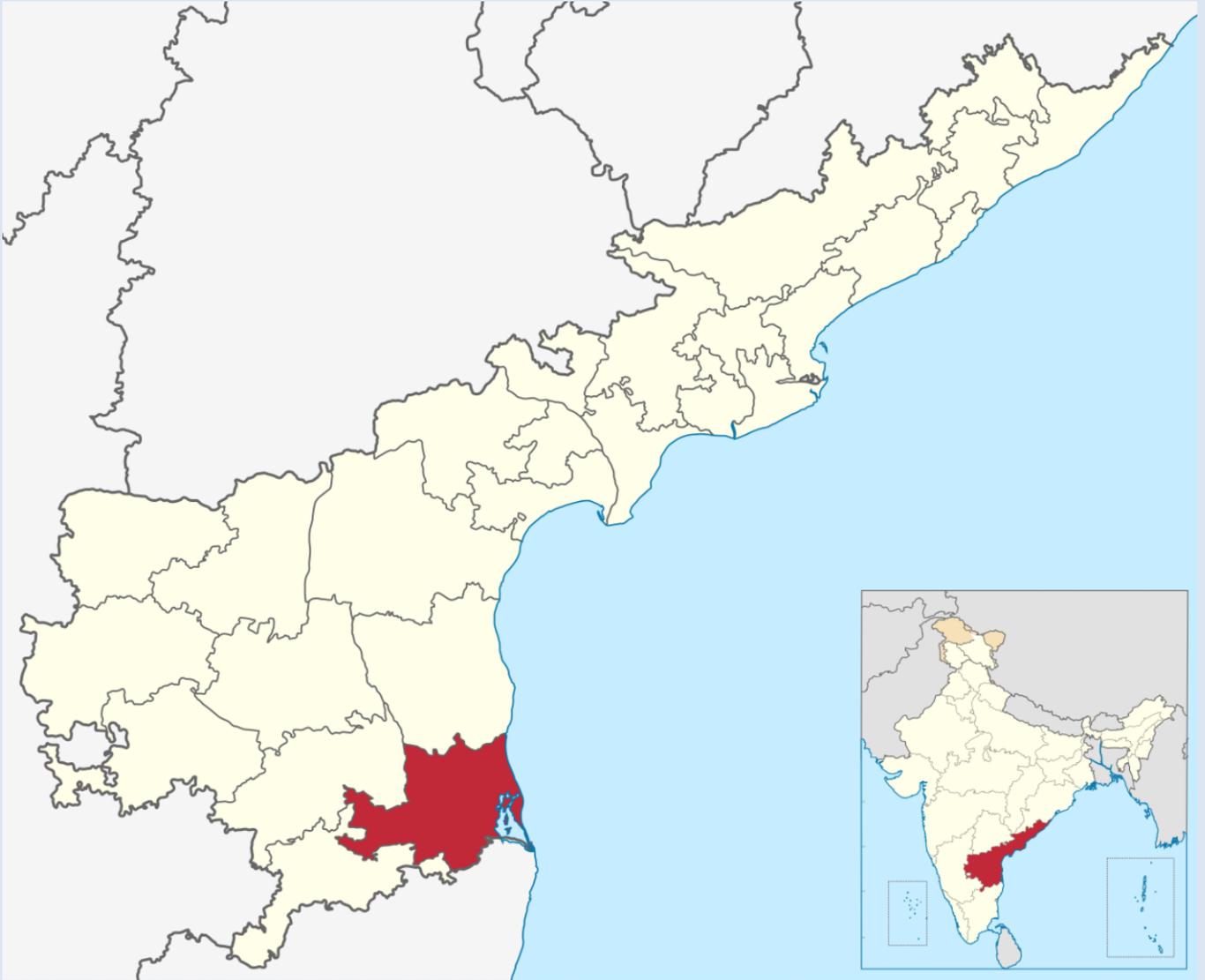
INDIA IN GLOBE



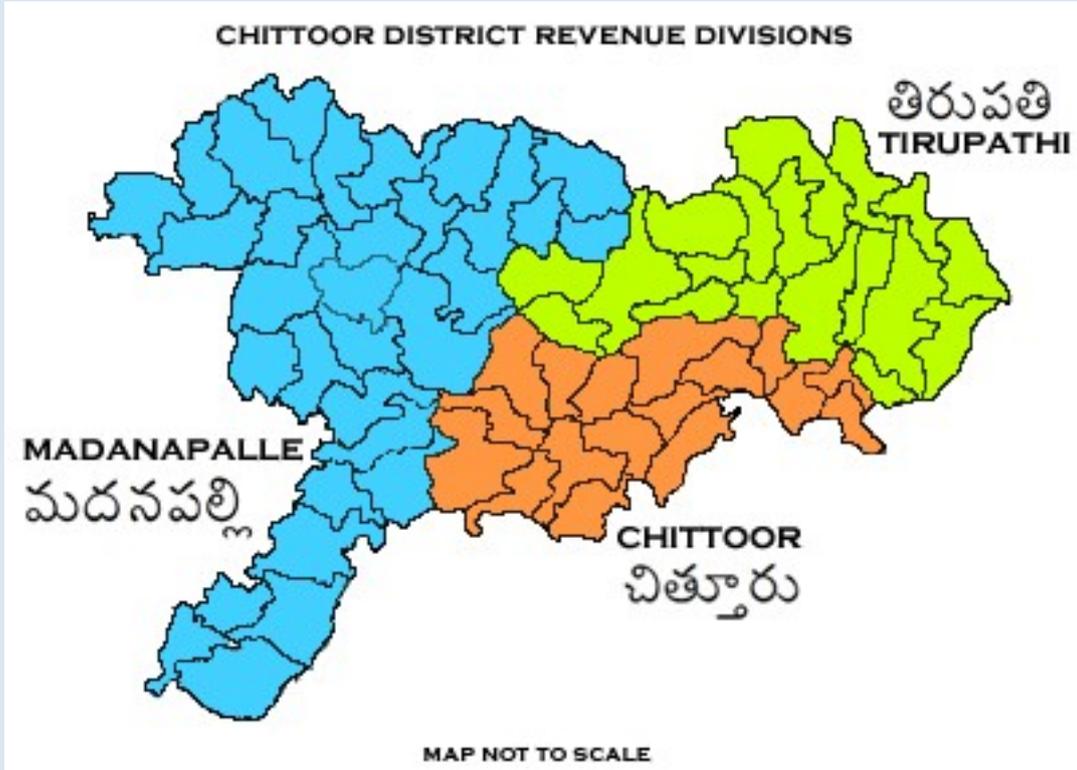
POLITICAL MAP OF INDIA



INDICATING ANDHRA PRADESH TERRITORY IN INDIA MAP



**POINTING OF CHITTOR DISTRICT IN ANDHRA PRADESH MAP ALONG
WITH INDICATING ANDHRA PRADESH STATE IN INDIA MAP**



SHOWING TIRUPATI DISTRICT FROM CHITTOOR MAP



DISTINCT VIEW OF SRI VENKATESWARA UNIVERSITY ADMINISTRATIVE BUILDING

The Audit covered the following major areas:

- Water Management
- Energy Efficiency and Energy Management
- Carbon foot print and Management
- Waste and Waste Management

4. WATER MANAGEMENT

S.No.	WATER CONSERVATION	FACILITIES AVAILABLE AT SRI VENKATESWARA UNIVERSITY
1.	RAIN WATER HARVESTING	Rainwater harvesting system, also called rainwater collection system or rainwater catchment system, technology that collects and stores rainwater for further use. The structures are seen at different locations within premises. Awareness programmes on water conservation and rain water harvesting have been conducted regularly through various service of the University.
2.	BORE WELL/OPEN WELL RECHARGE	The bore wells on campus are used to replenish rainwater. Bore well recharge technique also makes sure the storage of naturally filtered rainwater.
3.	CONSTRUCTION OF TANKS AND BUNDS	As a part of revival to traditional wisdom, the institution-built rain water storage tank, to collect the rainwater and can be used whenever it is required. Bunds are constructed to control the water table within the reclamation area; and control the flow of the discharge water in the fill area.
4.	WASTE WATER RECYCLING	Waste water management has been critical towards our sustainability models for reducing and reusing water at our campuses. The waste water after treatment is proposed to be utilized effectively for gardening purposes.
5.	MAINTENANCE OF WATER BODIES AND DISTRIBUTION SYSTEM IN THE CAMPUS	Water works Department maintain the water bodies and distribution system in the campus. The ground water is pumped into storage tanks located at different places in the campus. There are few numbers of overhead storage tanks. The water is distributed through well laid pipe network.

a.RAIN WATER HARVESTING

Rainwater harvesting means capturing rain where it falls or capturing the run off of rain water in your own premises. Rainwater harvesting system, also called rainwater collection system or rainwater catchment system, technology that collects and stores rainwater for further use. The collected water is also kept clean by filtering and such design of facility that does not allow pollutants to mix with collected water. Rain water is harvested from terrace, and ground floor areas for reusing in watering of lawns. Surface runoff from various ground sources and terraces are collected, filtered and recirculated for gardening and washing purpose. Besides natural percolation tanks, concrete storage tanks have also been built and rain water has been stored after proper filtration paving the open places with concrete roads is avoided so that rain water can be percolated. The rainwater harvested during rains not only helps to save water from conventional sources, but also to save energy and reduce expenses incurred on transportation and distribution of water. Awareness programmes on water conservation and rain water harvesting have been conducted regularly through various service of the University. One of the rain water harvesting pit is seen near Post Office. Similar structures are seen at different locations within premises.



Rain Water Harvesting Roof Top to the Plants



Rain Water Harvesting Roof Top to the Plants





Rain Water Harvesting Pits



Rain Water Harvesting Pits



Rain Water Harvesting-Department of Biotechnology

b. BORE WELL / OPEN WELL RECHARGE

Bore well / Open well recharge is very effective method of rain water harvesting. The bore wells on campus is used to replenish rainwater. Bore well recharge technique also makes sure the storage of naturally filtered rainwater. The water level rises when the bore wells are recharged. As a part of water conservation facilities that are available in the University, the bore well facilities are available in the campus. As the water crisis continues to become severe, there is a dire need of reform in water management system and revival of traditional systems.



Bore well

13.62859/79.3975



Open well

13.62749/79.3998



Bore wells



c.CONSTRUCTIONION OF TANKS AND BUNDS

As the water crisis continues to become severe, there is a dire need of reform in water management system and revival of traditional systems. As a part of revival to traditional wisdom, the institution-built rain water storage tank, to collect the rainwater and can be used whenever it is required. One of such bunds are seen in front of SVU Women's Hostel. Bunds are constructed to create stability of existing subsoils, slope angles and water levels to ensure the integrity of the reclamation area. Bunds are constructed to control the water table within the reclamation area; and. control the flow of the discharge water in the fill area.



BUNDS



BUNDS

d.WASTE WATER RECYCLING

Waste water management has been critical towards our sustainability models for reducing and reusing water at our campuses. The waste water after treatment is proposed to be utilized effectively for gardening purposes. Waste Water Recycling process facilitates the treatment of existing contaminants in the water or reduces the concentration of such contaminants so that the water becomes fit for the desired use. One of such seen in S V University Working Women's Hostel.



Waste Water Recycling in Women's Hostel

e.MAINTENANCE OF WATER BODIES AND DISTRIBUTION SYSTEM IN THE CAMPUS

Water works Department maintain the water bodies and distribution system in the campus. The ground water is pumped into storage tanks located at different places in the campus. There are few numbers of overhead storage tanks. The water is distributed through well laid pipe network. Drinking water after treating in RO plant is supplied through a separate set of distribution pipes and water for all other purpose is supplied through another set of distribution pipes. Entire distribution system is well supervised by Civil works people to ensure that there are no leakages and wastages of precious water through joints, valves etc. Waste usage of water is reduced using low pressure flushes. All the stakeholders of the college are well educated to use water economically and efficiently. Also, wash basins are available at each laboratory, staffrooms and department. Water facilities are available in the entire college without any interruption. The RO plants are periodically cleaned and maintained by assigning a specific technician in the maintenance department. The University have the cleaning schedule of all overhead water storage tanks. The water works section of the Engineering Department of S.V. University is regularly checking and cleaning all the tanks once in six months.





Water Tanks 13.62867/ 79.40366



Water Pumping System 13.63306/ 79.39824





WATER SUPPLY SYSTEM



RO Plants



Water Transport System

5.WASTE MANAGEMENT

a. SOLID WASTE MANAGEMENT

The University and colleges pay dedicated focus to see that minimal waste is generated in the campus. Solid waste is segregated as bio degradable and non-degradable and handed over to Tirupati Municipal corporation as a part of Swachh Bharat initiative and Clean and Green Tirupati. All Departments and classrooms are provided with dustbins for dry wastage disposal. Segregation of waste in to dry and wet waste from the separately allotted dustbins is done in strategic locations, thus maintaining the Campus clean and Eco-friendly. The use of plastic carry bags, cups and laminated paper plates are prohibited on the campus. Students and staff are advised to bring cloth bags. Workshops and awareness programmes were organized in the University.



Solid waste management in the campus

b.LIQUID WASTE MANAGEMENT

Next to air, water is the most important element for the preservation of life. Water is a finite commodity which, if not managed properly, will result in shortages in the near future. Water conservation can go a long way to help alleviate these impending shortages. Students are made aware that conserving water is equivalent to conserving their future. Drinking water from the tap, and refilling bottle as often as the students need is one of the best practices followed at SVU Disposable bottles are not allowed. Sustainable liquid waste treatment is adopted in campus through bioremediation using microorganism metabolism which helps to minimize the chemical and biological load of domestic sewage and is good for gardening purpose.

c.BIOMEDICAL WASTE MANAGEMENT

In the S.V University biomedical waste is produced in the labs where animals are using for research purpose. "Bio-medical waste" means wastes that are generated during diagnosis, treatment or immunization of human beings or animals or research activities or in the production or testing of biologicals. Medical waste includes all the waste generated from the Health Care Facility which can have adverse effects on the human health or to the environment in general if not disposed properly. In general, the quantity of biomedical waste will be 5% to 10% of total waste generated from the campus. Though the amount of waste is very negligible amount, the carcass of the animals are stored in the -20 °C for the time being. After sufficient amount of carcass stored university hand over to Tirupati Municipal Corporation for Biomedical waste management. Workshops on Bio Medical Waste Management Rules, procedures were conducted in the University.

d..E-WASTE MANAGEMENT

With the proliferation of electronics also comes the challenge of their proper disposal. S.V. University has very efficient mechanism to dispose E wastes generated from various sources. E-wastes are generated from computer laboratories, electronic labs, Physics Labs, Chemistry Lab, Biotech Labs, Academic and Administrative Offices. The e-waste includes out of order equipment's or obsolete items like lab instruments, circuits, desktops, laptops and accessories, printer, charging and network cables, Wi-Fi devices, cartridges, sound systems, display units, UPS, Biometric Machine, scientific instruments etc. All these wastes are put to optimal use. All such equipment's which cannot be reused or recycled is being disposed off through authorized vendors. Instead of a new procurement Buy-Back option is preferred for

technology up gradation. The University is grappling with ways to efficiently and cost-effectively handle the issue of electronic waste, ore-waste, on campus. It's normal for people to discard of products due to normal wear and tear, but technological advancements have accelerated e-waste growth as students, faculty and administrators frequently upgrade to better gadgets. This surge has forced University administrators to carefully examine and address the environmentally responsible disposal of these products on a campus-wide scale. E Waste collected is stored and disposed off annually. Students are also made aware of E-Waste issues and its safe disposal.



E-Waste Collection

e.WASTE RECYCLING SYSTEM

Degradable solid waste collected from cafeteria, Boys and Girls Hostels, Guest Houses and from Residential Quarters are dumped in the Vermi Compost Unit to make some Organic fertilizer which are used for Gardening.

f.HAZARDOUS CHEMICALS AND RADIOACTIVE WASTE MANAGEMENT

Campus is free from any kind of hazardous waste. Ideally, collection, transportation and proper handling of chemicals begin with understanding the potential hazards related to their use. All stakeholders, especially from Academic departments and laboratories are responsible for disseminating information on hazardous materials being used in the facility. Various types of chemicals are used in chemistry labs for number of experiments in the University. Some might be harmful while others may not. Some of the dangerous chemicals in lab are Acetonitrile, Chloroform, Dimethyl sulfoxide, Formaldehyde, 2-mercaptoethanol, Methanol, Sodium Azide, Sodium Hydroxide, Sodium hypochlorite, and Tetrahydrofuran. Highly toxic chemicals such as Arsenic trioxide, Chlorine, Hydrogen cyanide, Nitrous oxides, Phosgene, Potassium cyanide, Sodium arsenate, and Sodium cyanide which are dangerous and hence they are handled with care.

General procedures while working with hazardous chemicals -

1. Personal behaviour.
2. Minimizing exposure to hazardous chemicals.
3. Avoiding Eye injury.
4. Avoiding ingestion of hazardous chemicals.
5. Avoiding inhalation of hazardous chemicals.
6. Avoiding injection of hazardous chemicals.
7. Minimizing skin contact.
8. Storage of chemicals.
9. Use & maintenance of equipment and glassware.
10. Working with scaled-up reactions.
11. Responsibility for unattended experiments & working alone.
12. Chemistry demonstration & Magic shows.
13. Responding to accidents and emergencies.
14. Handling the accidental release of hazardous substance.

Four fundamental principles followed in the labs are -

1. Plan a head:

Determine the potential hazards associated without an experiment before beginning.

2. Minimize exposure to chemicals:

Do not allow laboratory chemicals to come in contact with skin. Use laboratory chemical hoods and other ventilation devices to prevent exposure to airborne substance whenever possible.

3. Do not underestimate hazards or risk:

Assume that any mixture of chemicals will be more toxic than its most toxic component. Treat all new compounds and substances of unknown toxicity as toxic substances.

4. Be prepared for accident:

Before beginning an experiment know what specific action to take in the event of accidentally release of any hazardous substance. Post telephone number to call in an emergency or accident in a prominent location. Know the location of all safety equipment and the nearest fire alarm and telephone.

Be prepared to provide basic emergency treatment. Keep your co-workers informed of your activities so they can respond appropriately.

Common Laboratory chemicals & their Hazard class-

1. Oxidizers: inorganic Nitrates, Nitrites, permanganates, chlorates, perchlorates, iodates, periodates, persulfates, chromates, hypochlorite, peroxides, sodium nitrates, sodium nitrites, Ammonium persulfate, sodium peroxides.
2. Oxidizing acids: Nitric acid, perchloric acids, Hydrogen peroxide, periodic acid, chromic acids.
3. Flammable liquids: methanol, ethanol, acetone, xylene, toluene, ethyl acetate, tetrahydrofuran, ethyl ether, Benzene, Dimethylformamide, Hexane.
4. Inorganic bases: metal hydroxides such as sodium, potassium, calcium, nickel hydroxide Ammonium hydroxide.
5. Organic bases: Amines such as Ethanolamine, tributylamine.
6. Acid flammable liquids: Glacial acetic acid, acetic acid, acetic anhydride, formic acid, propanoic acid.
7. Organic acids: Butyric acid, pentanoic acid.
8. Inorganic acids: Hydrochloric acid, Sulfuric acid, Phosphoric acids, Hydrofluoric acid.
9. Poisons: Acrylamides, chloroform, Formaldehyde, phenol, Glutaraldehyde, methylene chloride,
10. Toxic metals such as silver chloride, mercury acetate, barium carbonate, lead acetate, cadmium sulfate.
11. Cyanides
12. sulfides
13. Pyrophorics (air reactives)



Hazardous Chemicals kept separately in the Laboratory

The solvents used in the laboratories are reused after distillation to minimize the use of solvents. The waste solvents are separated as halogenated and non-halogenated and transferred to plastic containers. To prevent heat generation and gas evolution or other reaction, compatibility of the waste is checked carefully.

To prevent accidental spillage of chemicals the laboratory wastes are subjected to process through three stages of waste management. Stage-I gravel, Stage-II sand, Stage -III coal. The three chambers are replenished with new materials after a period of six months.

There is a separate room for the Nuclear Laboratory where radiation hazard is displayed for safety measures. The harmful radiations are radiated by appropriate routes. Containers containing radioactive elements are properly lead sealed.

Wearing appropriate lab coats, gloves and face shields while working with nano materials. The hazardous chemical wastes are kept in separate containers. Later they are filtered and drained out.

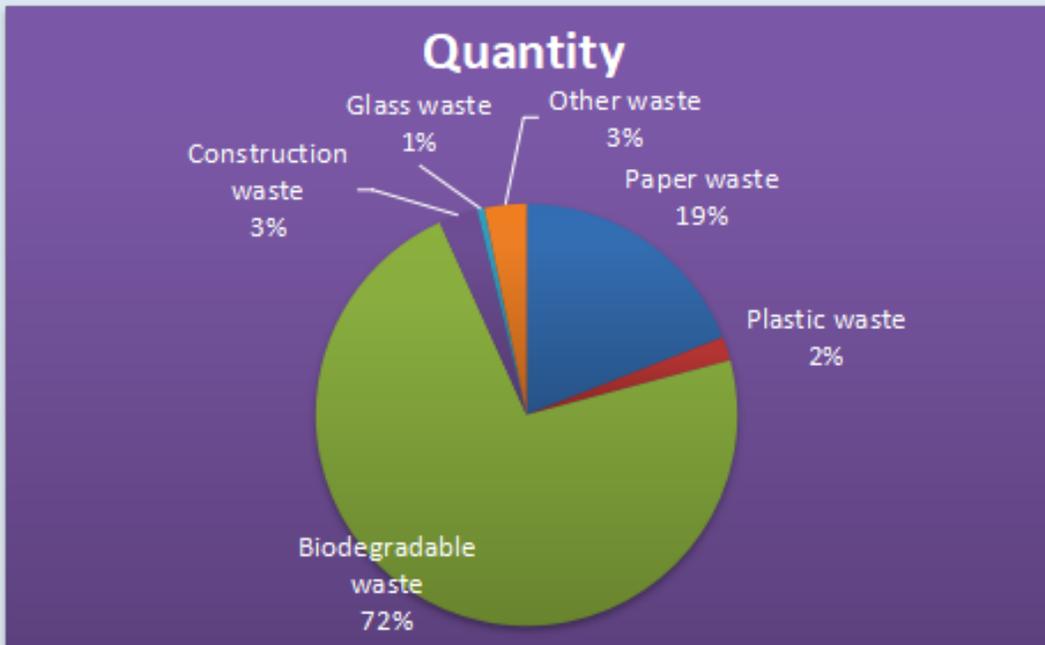
SOLID WASTE AUDIT

Solid waste is the unwanted or useless solid material generated from the human activities in residential, industrial or commercial area. Solid waste management reduces or eliminates the adverse impact on the environment and human health. A number of processes are involved in efficiently managing waste for an organization. It is necessary to manage the solid waste properly to reduce the load on waste management system. Unavailability of proper waste management practices may lead to environmental pollution. A waste management audit helps educational institutes to efficiently and responsibly dispose of the waste that is generated every day. By designing a more efficient waste disposal program through a waste audit, we can enhance recycling practices

Solid waste generation and its management is a burning issue in current days. The rate of generation of solid waste is very high and yet we do not have adequate technology to manage the generated waste. Unscientific handling of solid waste can create threats to public health and environmental safety issues. Thus, it is necessary to manage the solid waste properly to reduce the load on waste management system. The purpose of this audit is to find out the quantity, volume, type and current management practice of solid waste generation in Sri Venkateswara University campus. This report will help for further solid waste management and to go for green campus development. The waste generated from Sri Venkateswara University campus includes paper waste, plastic waste, biodegradable waste, construction waste, glass waste, biomedical waste and other wastes.

TABLE: CATEGORY WISE SOLID WASTE GENERATION AT UNIVERSITY (KG / MONTH)

Category of waste	Paper waste	Plastic waste	Biodegradable waste	Construction waste	Glass waste	Other waste	Total waste kg/month	Total waste kg/year
Quantity	784	75	2985	123	23	132	4122	49464
percentage	19.02	01.82	72.41	02.98	00.55	03.20	100	



GRAPH - SOLID WASTE GENERATION AT UNIVERSITY CAMPUS



BIOGAS PLANT

Biodegradable waste consists of Leaf litter, food waste, vegetable and fruit waste etc. is decomposed in composting, vermicomposting and bio-gas units established in the University campus. Other dry waste is collected by Waste collection vehicles of Tirupati Municipal Corporation. Overall University campus is maintained neat and clean throughout. Various awareness programmes were organized in and around campus for effective management of solid waste.



VERMICOMPOSTING

6. Energy Efficiency and Energy Management

S.No.	AITERNATE SOURCES OF ENERGY AND ENERGY CONSERVATION	FACILITIES AVAILABLE AT S V UNIVERSITY
1.	SOLAR ENERGY	<p>SV University has installed Total 1.75MW Rooftop Solar Power Plants to harness the solar energy on RESCO mode. Building wise installed solar plants details along with geo tagged photographs are enclosed.</p> <p>Solar dehydration technology has been using in food processing by the students of food technology in Department of Home Science. Research projects and student trainings were conducted in solar dehydration technology in collaboration with Society for Energy, Environment and Development (SEED) Hyderabad.</p>
2.	BIOGAS PLANT	<p>A Biogas Plant is located in the Campus for energy conservation. This energy release allows biogas is used as a fuel; it can be used for any heating purpose, such as cooking.</p>
3.	WHEELING TO THE GRID	<p>Solar energy generated by solar panels are exported to the grid of electricity distribution utility of Southern Power distribution company of Andhra Pradesh Ltd. Direct savings in electricity bills are availed from electricity distribution utility on monthly basis. Details of benefits accrued in bills are enclosed.</p>
4.	SENSOR-BASED ENERGY CONSERVATION	<p>Using sensors, we are minimizing the consumption of electrical power. With the help of the sensors, we are eliminating this shortage by minimizing the wastage of electrical power or saving our generated power. sensor that gives us signal when anything crosses its rays and detect a change in motion in its surroundings within different range of radius. The campus is equipped with sensor-based water taps and ACs at various locations.</p>
5.	USE OF LED BULBS/ POWER EFFICIENT EQUIPMENT	<p>The University adopted energy efficient lighting including L.E.D. based lights, Bulbs and Tube lights etc. to promote energy efficiency. Detailed Work Orders & Bills are enclosed.</p>

a.SOLAR ENERGY

The Institution has facilities for alternate sources of energy and energy conservation measures. Solar energy is the most attractive and abundant form of renewable energy source because it is free, environment friendly, and available most of the year. The most common and simplest application of solar energy is to convert it into heat. The University has been taken initiatives to utilize solar energy in the campus. Solar panels were established in various places in the university viz., Administrative Building, University library, Prakasam Bhavan, Engineering College, Hostels etc. The information in the establishment and utilization of solar energy is given in Annexures enclosed.



Solar Panel at SVU Library



Solar Panel at SVU Administrative Building



Solar Panel at Prakasam Bhavan



Solar Panel at Engineering College



Solar Panel at SVU Hostels

In Academics and Research, Solar dryer facility is available in the Department of Home Science. Food technology students and scholars conducted research projects using solar dehydration technology. Drying foods using solar energy helps in retaining the colour, Flavour and nutritional value to a large extent. It can minimize cost, wastage and increase the productivity in terms of quality and quantity. Hands on training was given to the students with the resource persons on solar dehydration. Various foods and food products were developed. The students undergone training programmes and internship in Society for Energy, Environment and Development (SEED) Hyderabad.

Solar dryers require a certain investment for the set-up of the appliance, but no expenditures for the fuel. The basic function of a solar dryer is to heat air to a constant temperature with solar energy, which facilitates extraction of humidity from foods inside a drying chamber. Ventilation is enabled at a constant rate through defined air inlets and outlets, small solar ventilators or temperature difference, either due to exposition or vertical height. In direct sun driers the food is put in boxes with a transparent lid. Additionally, the temperature in the drier is raised due to the greenhouse effect and the air exchange is regulated by vents. The food is not exposed to direct sunlight in indirect sun driers as the fresh air is heated separately from the food chamber. This method is preferable for drying foods which lose nutritional value when exposed to direct sunlight. Hybrid driers combine solar energy with a fossil fuel or biomass fuel. Solar drying has many advantages over open traditional drying like; Safe & hygienic, Free from insect and bird contamination, Clean & dust free products, more uniform quality products, Uniform colour, texture, and appearance of the product, evenness in drying, moisture control to optimum levels, Nutrient retention especially beta carotene, yields high quality Products with better shelf life of the products.



Solar Drying by the students of Food Technology



Plate 7: Osmo solar dried strawberry bits



Plate 8: Osmo solar dried pineapple bits

Dehydration of Fruits using Solar energy

PRE-PROCESSING AND



Fresh Pineapple



Removing the crown



Peeled Pineapple



Pineapple slices



Pineapple chunks



Steam blanching



After steam blanching



Cold water dipping



Dipping in sugar syrup



Loading into trays



Drying in solar chamber



**Osmo solar dehydrated
pineapple slices
(end product)**

b.BIOGAS PLANT

A Biogas Plant is located in the Campus for energy conservation. Biogas is a renewable energy source, a mixture of gases produced by the breakdown of organic matter in the absence of oxygen (anaerobically), primarily consisting of methane and carbon dioxide. Biogas is produced from raw materials such as plant material, leaves, Kitchen waste like Vegetables and fruits peelings, stale food, waste generated in the campus. sewage, green waste or food waste etc. Biogas is primarily methane (CH_4) and carbon dioxide (CO_2) and hydrogen sulphide (H_2S), moisture and siloxanes. The gases methane, hydrogen, and carbon monoxide (CO) can be combusted or oxidized with oxygen. This energy release allows biogas is used as a fuel; it can be used for any heating purpose, such as cooking. It can also be used in a gas engine to convert the energy in the gas into electricity and heat.



Biogas Plant Facility in the Campus

c.WHEELING TO THE GRID

Solar energy generated by solar panels are exported to the grid of electricity distribution utility of Southern Power distribution company of Andhra Pradesh Ltd. Direct savings in electricity bills are availed from electricity distribution utility on monthly basis. Details of benefits accrued in bills are enclosed. Workshops on ‘Green Power Technology in Power Grid: Issues, Challenges and Control’ was taken place in the university.



Solar Panels are exported to the Grid of Electricity



Solar Panels are exported to the Grid of Electricity



18th -21st DECEMBER 2019

(i) “Green Power Technology in Power Grid: Issues, Challenges and Control”



(ii) “Green Power Technology in Power Grid: Issues, Challenges and Control”



(iii) “Green Power Technology in Power Grid: Issues, Challenges and Control”

7. BIODIVERSITY AUDIT

Carbon is the basis of life on mother Earth. It is incorporated into the plants through photosynthesis, consumed by animal species through the food, present in the form of carbon dioxide (CO₂) in the atmosphere, locked into the rocks as limestone and compressed into the different fossil fuels such as coal and oil. As CO₂ level in the atmosphere continue to increase, most climate designs or project that the oceans of the world and trees will keep soaking up more than half CO₂. The plants on land and in the sea, taken up carbon by over many years increased the percentage discharged during decay, and this increased carbon became locked away as fossil fuels beneath the surface of the planet.

The starting of the 21st century brought growing concern about global warming, climate change, food security, poverty and population growth. In the 21st century more carbon has been released into the atmosphere than that has been absorbed. CO₂ is a principle component causing global warming. Atmospheric carbon dioxide levels have increased to 40 % from preindustrial levels to more than 390 parts per million CO₂. On this background it is a need of time to cover the research areas interrelated with climate change.

The “Carbon Sequestration and Green cover inventory” is a current status of tree cover and vegetation carbon storage assessment of area under Sri Venkateswara University campus. In an era of climate change and global warming carbon emission, carbon footprints, carbon sequestration, adaptations, mitigation are the keywords in academia. Carbon sequestration is a process of converting atmospheric carbon i.e. CO₂ into other sinks of carbon such as vegetation, soil, ocean etc. in various forms to mitigate global warming audit is one of the important clauses of Kyoto Protocol.

While transforming ourselves from regional university to global university it is a responsibility of such universities to face the global future challenges and try to find out possible solutions for them. It is a social and environmental responsibility of Government Institutes, Universities, National and International Organizations to respond positively for various global issues at local level and should percolate the generated knowledge in to the society. Global warming and climate change are current environmental issues need to be addressed scientifically and efficiently. As Universities are provided with skillful human resource supported by analytical infrastructure, it is our duty to bring such ideas in practice. While understanding the call of time the Department of Botany and Environmental Science, Sri Venkateswara University has decided to enumerate the greencover of Sri Venkateswara University campus.

Table: List of plant species on Sri Venkateswara University Campus

S. NO	COMMON NAME	BOTANICAL NAME	TYPE/ USE
2.	Custard Apple	<i>Annona squamosa</i> L. (Var.name:seethapalam)	Fruit yielding, Medicinal
3.	False ashoka	<i>Polyalthia longifolia</i> (Sonner) Thw. (Naramamidi) -60	Wind breaker
4.	False ashoka	<i>Polyalthia longifolia</i> Hook. & Thom. Var. pendula (Ontikomma naraamamidi) -51	Wind breaker
5.	Snuff-Box Tree	<i>Oncoba spinosa</i> Forsk. (Line gulabi) - 01	Medicinal
6.	Red silk-Cotton tree	<i>Bombax ceiba</i> L. (Buruga) -03	Fibre yielding
7.	Bael	<i>Agle marmelos</i> (L.) Corr. (Maredu) - 01	Medicinal
8.	Tree of heaven	<i>Ailanthus excelsa</i> Roxb. (Pedda vepa) -01	Matchstick industry
9.	Neem tree	<i>Azadirachta indica</i> A. Juss. (Vepa) - 150	Medicinal
10.	Indian mahogany	<i>Chukraia tabularis</i> A. Juss. (Konda vepa) -01	Medicinal
11.	Indian rose wood	<i>Somyda febrifuga</i> (Roxb.) A. Juss. (Somi) -02	Medicinal, Wood yielding
12.	Ceylon satinwood or East Indian satinwood	<i>Chloroxylon swietenia</i> DC. (Billudu) -08	Wood yielding
13.	Ceylon Tea	<i>Cassine glauca</i> (Rottb.) Kuntz. (Neridi) -06	Medicinal
14.	Indian jujube	<i>Ziziphus mauritiana</i> Lam. (Regi chettu) -18	Fruit yielding
15.	Kath Ber	<i>Ziziphus xylopyrus</i> (Retz.,) Willd. (Gotti) -03	Medicinal
16.	Notched Leaf Soapnut	<i>Sapindus emarginatus</i> Vahl. (Kunkudu) -08	Medicinal
17.	Mango	<i>Mangifera indica</i> L. (Mamidi) -04	Fruit yielding
18.	Indian ash tree	<i>Lannea coromandelica</i> (Houtt.) Mann. (Gumpana) -60	Plywood making
19.	Flame-of-the-forest	<i>Butea monosperma</i> (Lam.) Taub. (Modhuga) -02	Medicinal
20.	Indian rosewood	<i>Dalbergia latifolia</i> Roxb. (Iridi) -02	Wood yielding
21.	Mexican Lilac	<i>Gliricidia sepium</i> (Jacq.) Kunth ex Walp. (Seema kanuga) -10	Rat poison
22.	Indian beech and Pongame oiltree.	<i>Pongamia pinnata</i> (L.) Pier. (Kanuga) -13	Medicinal , Biodiesel preparation
23.	Malabar kino	<i>Pterocarpus marsupium</i> Roxb. (Yegi)	Medicinal

		-02	
24.	Red Sanders	<i>Pterocarpus santalinus</i> L.f. (Errachandhanam) -16	Medicinal, Wood yielding
25.	Orchid Tree	<i>Bauhinia purpurea</i> L. (Deva kanchanam) -02	Medicinal
26.	Bidi leaf tree	<i>Bauhinia recemosa</i> Lam. (Ari chettu) -01	Medicinal
27.	Red cassia, Ceylon senna	<i>Cassia roxburghii</i> DC. (Rela) -54	Medicinal
28.	Siamese cassia	<i>Cassia siamea</i> L. (Seema thangedu) -33	Medicinal
29.	Royal Poinciana	<i>Delonix regia</i> (Boj. Ex Hook.) Rafin. (Thurai) -12	Ornamental
30.	Yellow Flame/ Copper pod	<i>Peltophorum pterocarpum</i> (DC.) Baker ex Heyne. (Konda chintha) -272	Ornamental
31.	Tamarind	<i>Tamarindus indica</i> L. (Chintha) -59	Cuisines , Medicinal
32.	Auri,	<i>Acacia auriculiformis</i> A. Cunn. ex Benth. (Australia thumma) -02	Ornamental
33.	White-bark acacia	<i>Acacia leucophloea</i> (Roxb.) Willd. (Thella thumma) -02	Wood
34.	Lebbeck /Woman's tongue tree	<i>Albizia lebbeck</i> (L.) Benth. (Bagichettu) -16	Forage , Wood
35.	Jumbay, white leadtree,	<i>Leucaena latisiliqua</i> (L.) Gillis. (Subabulu) -07	Multipurpose tree
36.	Badminton ball tree	<i>Parkia biglandulosa</i> Wt.& Arn. (Banthi thumma) -02	Ornamental
37.	Manila Tamarind	<i>Pithecellobium dulce</i> (Roxb.) Benth. (Cheema chintha) -01	Food, Traditional medicine
38.	Chilean mesquite	<i>Prosopis chilensis</i> (Molina) Stuntz. (Sarkar thumma) -01	Shade tree
39.	Rain tree	<i>Samanea saman</i> (Jacq.) Merr. J. Wash. (Nidraganneru) -19	Shade tree
40.	Arjuna/ Arjun tree	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wt. & Arn. (Tellamaddhi) -16	Silk production (Tassar)
41.	Baheda	<i>Terminalia bellirica</i> (Gaertn.) Roxb. (Thandra) -02	Medicinal
42.	Indian almond	<i>Terminalia catappa</i> L. (Badam chettu) -02	Food/ wood/ Ornamental
43.	Southern blue gum	<i>Eucalyptus globulus</i> Labill. (Neelagiri thylam) -52	Essential oil/ Wood

44.	Common guava	<i>Psidium guajava</i> L. (Jama chettu) -01	Food, Traditional medicine
45.	Jamun	<i>Syzygium cumini</i> (L.) Skeels. (Neredu chettu) -60	Food medicine
46.	Gummy Gardenia	<i>Gardenia gummifera</i> L.f. (Bikki) -02	Medicinal
47.	West Indian jasmine	<i>Ixora acuminata</i> Roxb. (Tella ramabanam) -02	Ornamental
48.	Aal or Indian mulberry	<i>Morinda pubescens</i> J.E. Smith var. pubescens Verdc. (Maddi) -56	Dye yielding
49.	Torch tree	<i>Ixora pavetta</i> Andr. (Korivi chettu) -03	Ornamental
50.	Madhūka,	<i>Madhuca longifolia</i> (K oen.) Macbr. Var. <i>latifolia</i> (Roxb.) A. Cheval. (Ippa) -08	Silk production (tassar) and medicinal
51.	Sapodilla	<i>Manilkara zapota</i> (L.) P. Royen. (Sapota) -01	Fruit yielding
52.	Spanish cherry	<i>Mimusops elengi</i> L. (Pogada) -05	Medicinal
53.	Caterpillar tree	<i>Plumeria alba</i> L. (Tella devaganneru) -08	Ornamental, Medicinal
54.	Pinwheel flower,	<i>Tabernaemontana divaricata</i> L. (Nandivardhanam) -02	Ornamental, Medicinal
55.	Small Pinwheel flower	<i>Ervatamia divaricata</i> (L.) Burkill (Sanna nandivardhanamu) -02	Ornamental, Medicinal
56.	Sweet Indrajao	<i>Wrightia tinctoria</i> (Roxb.) R. Br. (Reppala) -28	Dye yielding, Medicinal
57.	Yellow oleander	<i>Cascabela thevetia</i> (L.) Lipp. (Patcha ganneru) -04	Poisonous
58.	Indian Cherry	<i>Cordia dichotoma</i> Forst. (Iriki) -01	Traditional medicine
59.	Geiger tree	<i>Cordia sebestena</i> L. -01	Ornamental
60.	Wavy trumpet flower	<i>Dolichandrone atrovirens</i> (Roth) Spr. (Oddi) -02	Ornamental
61.	Jacaranda, blue jacaranda	<i>Jacaranda acutifolia</i> Humb . & Bonpl. (Swarna sundari) -01	Ornamental, Wood
62.	Sausage tree	<i>Kigelia africana</i> (Lam.) Benth. In Hook. (Enugu thondamu) -06	Poisonous
63.	Tree jasmine or Indian	<i>Millingtonia hortensis</i> L.f. (Manu malli) -05	Ornamental

	cork tree		
64.	African tulip tree	<i>Spathodea companulata</i> P.Beauv. (Yerra neeru budda) -01	Ornamental
65.	Silver Trumpet Tree	<i>Tebebuia argentea</i> (Bur. & K. Schum.) Britt. -03	Ornamental
66.	Rosy trumpet tree	<i>Tebebuia rosea</i> (Bertol.) DC. -05	Ornamental
67.	Yellow trumpetbush	<i>Tecoma stans</i> (L.) Kunth. (Pasupu ganneru) -01	Ornamental
68.	Desert teak	<i>Tecomella undulata</i> (Sm.) Seem. -02	Wood yielding
69.	Teak	<i>Tectona grandis</i> L.f. (Teku) -09	Wood yielding
70.	Helicopter tree	<i>Gyrocarpus asiaticus</i> Willd. (Kummara poliki) -02	Ornamental
71.	Great bougainvillea,	<i>Bougainvillea spectabilis</i> Willd. -03	Ornamental, Tribal medicine
72.	Indian sandalwood	<i>Santalum albam</i> L. (Srigandhamu) - 02	Wood, Medicine
73.	Indian gooseberry	<i>Phyllanthus emblica</i> L. (Nellikaya) - 07	Culinary, Traditional medicine
74.	Indian elm	<i>Holoptelea integrifolia</i> (Roxb.) Planch. -09	Cheap wood, Medicinal
75.	Banyan	<i>Ficus benghalensis</i> L. -44	Cultural significance
76.	Sacred Fig	<i>Ficus religiosa</i> L. (Ravi chettu) -17	Traditional medicine
77.	The common fig	<i>Ficus carica</i> L. (Atthi chettu) -01	Food, Folk medicine
78.	Australian pine tree or whistling pine tree	<i>Casurina littorea</i> L. (Sarugudu) -02	Wood, Ornamental
79.	Traveler's palm	<i>Ravenala madagascarensis</i> Sonner. (Panka arati) -01	Ornamental
80.	Indian shot	<i>Canna indica</i> L. (Metta thamara) -02	Ornamental
81.	Thorny bamboo	<i>Bambusa arundinacea</i> (Retz.) Roxb. (Veduru) -02	Wood for thatching
82.	Toddy Palm	<i>Borassus flabellifer</i> L. (Tati chettu) - 01	Edible, Palm wine
83.	Cuban royal palm	<i>Roystonea regia</i> (Kunth) O.F. Cook. - 20	Ornamental
84.	Yellow Cane Palm	<i>Dypsis lutescens</i> (H.W endl.) Beentje & J. Dransf. -14	Ornamental



Custard Apple



Indian mahogany



Indian ash tree



Flame-of-the-forest



Red cassia, Ceylon senna



Arjuna/ Arjun tree



Sweet Indrajao



Rosy trumpet tree



Silver Trumpet Tree



Geiger tree



Indian elm



Cycas beddomei



***Couroupita guianensis* (Cannonball tree)**



Indian sandalwood

Plant species on Sri Venkateswara University Campus

In ecology, the mass of living biological organism in a given area or ecosystem at a given time is called as biomass. Biomass can refer to species biomass and community biomass. The species biomass is the mass of one or more species. The community biomass, which is the mass of all species in the community. It includes microorganisms, plants or animals. The mass can be defined as the average mass per unit area, or as the total mass in the community.

To estimate the biomass of each individual tree species non-destructive method was used. To calculate the circumference Diameter at Breast Height (DBH) can be determined by measuring tree Girth at Breast Height (GBH), approximately at 1.3 meter from the ground. The Girth at Breast Height of trees having diameter which greater than 10 centimeters were measured directly by measuring tape.

To maintain green cover and carbon sequestration potential of the University following precautionary measures were taken.

Plantation of endemic species like *Pterocarpus santalinus*, *Cycas beddomei*, *Boswellia ovalifoliata*, *Syzygium cumini* etc were planted to conserve native biodiversity. The plantation of tree species like *Acacia nilotica subsp. indica*, *Albizia lebbeck*, *Azadirachta indica*, *Citrus aurantium* works as green belt which can maintain the ecological balance in the environment as well as act as sink for the harmful gases and improve air quality. Plantation activity is taken every year to increase the green cover on the University campus. Avoided the plantation of exotic species like *Casuarina*, which is fast growing species with less ecological values.

8.SITE STUDY

On-Site Observations Study

The following listed are some of the positive site elements which are beneficial to the University in terms of tangible and intangible benefits.

Location-The Sri Venkateswara University, Tirupati-517 502, Andhra Pradesh, India and falls under the Tirupati Municipal Corporation, the largest University in the Rayalaseema region of Andhra Pradesh.

Neighborhood context- The premises is surrounded by open spaces and Residential spaces. On the immediate surroundings of the site, there are educational institutes and site is close to National Highway 44 and is in Tirupati city which is famous for Handicrafts like Woodcarving and Calakari.

Natural Physical features-The premises is centrally situated in the city amidst residential areas and open spaces with appropriate proximity to necessary amenities. There is sufficient appreciation space for entrance.

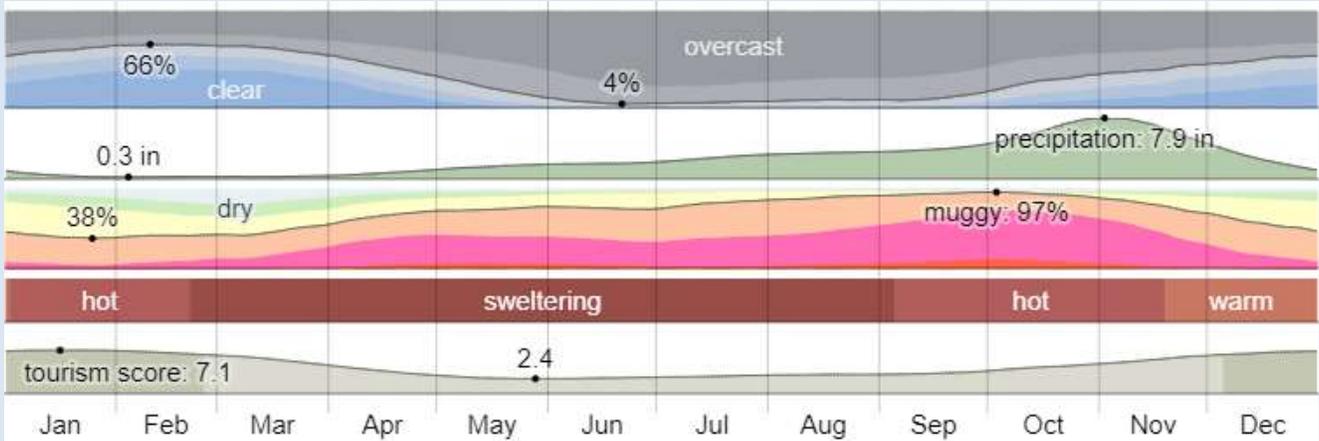
Circulation-There is a smooth transition of pedestrian traffic inside the premises due to the large entrance gate along with pollution free Campus.

Climate-the wet season is hot, oppressive, and overcast and the dry season is sweltering, muggy, and partly cloudy. Over the course of the year, the temperature typically varies from 62°F to 106°F and is rarely below 58°F or above 112°F.

Average Temperature in Tirupati

The hot season lasts for 2.5 months, from March 24 to June 8, with an average daily high temperature above 101°F. The hottest month of the year in Tirupati is May, with an average high of 105°F and low of 80°F.

The cool season lasts for 2.9 months, from October 26 to January 22, with an average daily high temperature below 88°F. The coldest month of the year in Tirupati is December, with an average low of 64°F and high of 84°F.



CLIMATE IN TIRUPATI



Average High and Low Temperature in Tirupati

The daily average high (red line) and low (blue line) temperature, with 25th to 75th and 10th to 90th percentile bands. The thin dotted lines are the corresponding average perceived temperatures.

Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High	87°F	94°F	100°F	104°F	105°F	100°F	97°F	95°F	94°F	90°F	85°F	84°F
Temp.	73°F	78°F	84°F	89°F	91°F	88°F	85°F	84°F	83°F	80°F	75°F	73°F
Low	63°F	65°F	70°F	76°F	80°F	79°F	76°F	75°F	74°F	71°F	67°F	64°F

9.Routine Green Practices

World Water Day-21st March, World Earth Day- April 22, World Biodiversity Day- May 22, World Environment Day – June 5, Ozone Day – September 16

Awareness seminars are organized on various environmental problems. Distribution of fruit trees, poster exhibitions etc. are some activities performed on those days.

University also conducts competitions, invited lectures etc. and University has been following the policy of **'Save Water Save Earth'**.

The Green campus drive is an initiative of the University to protect the Environment. The University has declared 'No Plastic' & No Smoking' zone in the campus. The campus protects age old trees in addition to several new plants planted. The campus is lush green with gardens, lawns, flowers and plants wherever there is open space. Rain water is harvested and collected. There is a pond located in front of Working Women's Hostel where it diversifies the beauty of nature. Bio-degradable waste is collected and made into compost. Non-degradable and electronic waste and toxic materials are regularly disposed off. Important days like World Environment Day, Ozone Day, World Soil Day, World Dietetics Day, etc are observed and several programmes including processions with placards, competitions and street plays are conducted by various departments to create awareness on environment protection and conservation.





WORLD ENVIRONMENT DAY JUNE 5TH



WORLD DIETETICS DAY MARCH 8TH

10. Carbon Foot Print

Eco-friendly commuting Practices

Ease of Commuting-Owing to close proximity to Public transport the access is very feasible and walkable.

Area- The University covers a land of approximately 483 acres with more than 42 buildings accommodating Administrative, College buildings, Guest House V C Bungalow, Staff Quarters and Hostel facilities.

Vehicular Traffic- The entry of two-wheelers into the Campus is restricted to 425 per day, four wheelers 40 per day and battery-operated vehicles 25 per day and parking facilities are minimum to avoid Pollution and reduce noise levels which is a good approach.

Heat Island Reduction

The University has adopted Solar Panels on the terrace of Hostels and in all Administrative buildings to absorb the heat especially in the dark roof surfaces and radiating it out again overnight.

The Premises has planted huge number of trees on both sides of the road and provide immense shade to the sun exposed roads and placed with adequate concrete benches in the sit-out area for students to carry out the studies smoothly.

11. Fire Safety

Fire safety measures are well adopted in the University and each floor has an open stair-case without any barriers for fire safety measures. Additional fire safety measures like fire alarms, smoke detectors and fire emergency kit are available in the necessary areas in the Premises.

The building wise summary of fire safety is as follows:

S.No.	Building Name	Floor	Number of Fire Extinguishers
1.	Administrative Building	Ground floor	09
2.	Administrative Building	First floor	11
3.	Administrative Building	Second floor	02
4.	Dr. D.J.Reddy Bhavan Natural Sciences Block	Ground floor	03
5.	Dr. D.J.Reddy Bhavan Natural Sciences Block	First floor	04
6.	Dr. D.J.Reddy Bhavan Natural Sciences Block	Second floor	02
7.	Dr. D.J.Reddy Bhavan Natural Sciences Block	Third floor	01
8.	Vaman Rao Bhavan	Ground floor	03
9.	Vaman Rao Bhavan	First floor	03
10.	Physical Sciences Block	All floors	14
11.	Virology Building	First floor	01
12.	Virology Building	Second floor	01
13.	Microbiology Building	Ground floor	01
14.	Engineering Department	All buildings	30
15.	Praksham Bhavan	All floors	15
16.	Pharmaceutical Sciences Building	All floors	03
17.	CM&CS Building	All floors	09
18.	Library	All floors	06
19.	Health Centre	All floors	07
20.	Computer Centre	All floors	04
21.	Srinivasa Auditorium	Ground floor	06
22.	All Messes	Ground floor	05
23.	Physical Education Block	Ground floor	02
24.	Prof. Choppla Ratnam Bhavan	Ground floor	02
25.	Old MBA Building	All floors	06
26.	Commerce Building	Ground floor	01
27.	DST Purse Centre Building	All floors	04
28.	IASE	All floors	02

29.	PG Department of Law	Ground floor	01
30.	Biotechnology Building	All floors	03
31.	ORI	All floors	02
32.	DDE	All floors	03
33.	Guest House	All buildings	04
34.	V C Bungalow	All floors	03
35.	Annamaya Bhavan	All floors	02
36.	Geography Block	All floors	01
37.	Hostels	All	12
38.	Post Office	Ground floor	01
39.	Bio Chemistry	All floors	03
40.	SEAPS	All floors	01
41.	Annapoorna Canteen	Ground floor	01
42.	State Bank of India+ DOA	All floors	03
43.	Union Bank of India + MHRD	All floors	03
44.	SVU Campus School	All floors	04
45.	SVU Stadium	Ground floor	04

The University abides to the Rules and Regulations of the Fire Department and equal number of fire extinguishers are provided in all the premises of the University. Red colour buckets with sand are also present in the University.

Study of Site features:

- Route maps to facilitate easy transport
- Usage of bicycles and e-motor vehicles to reduce pollution
- Water pits to harvest rain water
- Pleasant environment with Ponds and variety of trees
- Acclimatization of land to grow different flowering plants
- Clearing of unwanted plants to control mosquitoes and insects
- Solar panels installation to reduce electricity consumption
- Restriction on automobile entry into the campus
- Xerox shop and canteen facilities are available for the usage of students and faculty community.

12.SUMMARY

- The environmental awareness initiatives are adequate.
- The University campus is plastic free.
- The installation of solar panels, Fire extinguishers are seen.
- Fully carbon foot prints and wastes free zone action.
- Rain water harvesting systems, solar power generation, Bio Gas, Re-use of water environmental education programs are well implemented.

Awareness on Carbon Consumption

- Students and Staff members are made totally aware of pollution caused by the use of vehicles.
- The carbon consumption awareness programs on carbon emission at Individual as well as social level will help to avoid air and noise pollution in the campus due to vehicles.

Environmental Education

The following environmental education program may be implemented in the University before the next green auditing: -

Increase the number of display boards on environmental awareness such as – save water, save electricity, no wastage of food/water, no smoking, switch off light and fan after use, plastic free campus etc.



SRI VENKATESWARA UNIVERSITY
Tirupati - 517502

ENVIRONMENTAL AUDIT
2021 - 2022

ACKNOWLEDGEMENT

The Audit Assessment Team thanks **Sri Venkateswara University, Tirupati, Andhra Pradesh, India** for assigning this important work of Environment Audit. We appreciate the cooperation extended to our team during the entire process of the year **2021-2022**.

Our special thanks are due to **Honorable, Vice-Chancellor** of the University **Prof. K. Raja Reddy, M.A., Ph.D., Prof. V. Srikanth Reddy M.Sc., Ph.D., Rector and Prof. O. Mahammad Hussain M.Sc., Ph.D., Registrar.**

We are also thankful to IQAC Faculty members and NAAC Steering Director who have collected required data.

We highly appreciate the assistance of the Admin Staff for their support while collecting the data.

The kind gesture of the Non-Teaching Staff and Maintenance Staff for the inventory and data collection is quite commendable.

AUDIT COMMITTEE MEMBERS

The Committee members are listed below:

S. No.	Name	Designation
1.	Vice-Chancellor(Prof. K. Raja Reddy, M.A., Ph.D.,)	Chairman
2.	Registrar(Prof. V. Srikanth Reddy M.Sc., Ph.D.,)	Convener
3.	Rector(Prof. O. Mahammad HussainM.Sc., Ph.D.,)	Member
4.	IQAC Director	Member
5.	NAAC Steering Committee Director	Member
6.	Prof. T.Vijaya Botany	Member
7.	Prof. I.V. Ramana Reddy Civil Engineering	Member
8.	Prof. T. Sarada Arts	Member
9.	Dr. K.V. Saritha Biotechnology	Member

CONTEXT AND CONCEPT

In India, the process for Environmental Audit was first mentioned under the Environment Protection Act, 1986 by the Ministry of Environment of forests on 13th March, 1992. As per this act, every person owning an industry or performing an operation or process needs a legal consent and must submit an Environmental report or statement.

The National Assessment and Accreditation Council, Bangalore (NAAC) has made it mandatory from the academic year 2019-20 onwards that all Higher Educational Institutions should submit an annual Green, Environment and Energy Audit Report. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint Reduction measures.

In view of the NAAC circular regarding Environment Auditing, the University has decided to conduct an external environment assessment which was headed by various departments and faculty members throughout the University.

The term 'Environmental audit' or 'Green audit' means different to different people. Terms like 'assessment', 'survey' and 'review' are also used to describe similar activities. Furthermore, some organizations believe that an 'environmental audit' addresses only environmental matters, whereas others use the term to mean an audit of health, safety and environment-related matters. Although there is no universal definition of Green Audit, many leading companies/institutions follow the basic philosophy and approach summarized by the broad definition adopted by the International Chambers of Commerce (ICC) in its publication of Environmental Auditing (1989).

The ICC defines Environmental Auditing as: "A management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of safeguarding the environment and natural resources in its operations/projects."

1. INTRODUCTION

Nature is very precious gift for all life forms. Disturbance in the nature causes Environmental Problems increasing day by day due to development of Urbanization and Industrialization on Earth. The planet is facing tremendous pressure due to unplanned utilization of resources which result in the increase of temperature. Therefore, urgent need for planning and consumption of the resources in sustainable manner to preserve natural resources for future generation.

Sustainable development is becoming popular in the world for saving the Earth. Utilizing resources judiciously can save the Earth's precious resources. Measurement of Environmental components are the most effective step to conserve and protect natural resources.

Environmental auditing had begun in the early 1970s with provision of civil lawsuits for non-compliance with Environmental regulations. Environment auditing involves on site visit, collection of samples, performing analyses, and report results to competent authorities. Industries, and the Corporate World are initiating auditing for saving natural resources. Academic Institutions also can contribute to the preservation and conservation of resources within their Premises.

This "Environment Audit" report would help everyone to think about preserving resources, show willingness to learn their importance, adopt steps to minimize resource use and set an example for others to follow the path of eco-friendly practices to achieve the goal of sustainable development. Effective implementation of environmental auditing helps in minimization of environmental risks at low cost.

Green Champion Certificate



भारत सरकार / Government of India

महात्मा गांधी राष्ट्रीय ग्रामीण शिक्षा परिषद / Mahatma Gandhi National Council of Rural Education

उच्चशिक्षाविभाग / Department of Higher Education

शिक्षामंत्रालय / Ministry of Education



District Green Champion Certificate

This is to certify that **SRI VENKATESWARA UNIVERSITY** is hereby recognized as **District Green Champion** for **Chittoor** District, Andhra Pradesh for the Academic Year 2021-22. The institution has successfully elevated the Swachhta Action Plan, adopted and implemented best practices in the areas of Sanitation, Hygiene, Waste Management, Water Management, Energy Management and Greenery Management.

Dr W G Prasanna Kumar
Chairman, MGNCRE

Ministry of Education, Government of India

तारीख / Date : 12.03.2022
ज्ञापनसंख्या / Memo no: MGNCRE/SAP22/10



ENVIRONMENT CONSERVATION MEASURES

OVERVIEW OF UNIVERSITY

Sri Venkateswara University established in 1954 is located serenely in a picturesque campus at the foot of the Seven hills.

The University has been a premier Institution of Higher Learning, Research, Extension and consultancy to cater to the Educational needs and aspirants of the people of the Rayalaseema Region of Andhra Pradesh and has been playing a pivotal role in creating new knowledge, fostering innovation to produce economic value, and addressing the societal needs and challenges.

Judging the historical time constants of evolution SVU has emerged as one of the leading Universities in the World in a relatively short span of time.

This rapid ascent stems from the core activities of SVU which have a demonstrable influence in advancing knowledge that benefits national priorities and global scientific innovations.

University has been imparting quality education through an outcome and value based education, supported by competent and learned Faculty members who regularly update their knowledge through organizing and participating in National and International Conferences, Seminars and Workshops.

The Faculty Members have also raised the standards of Teaching through incorporating MOOC courses, chiefly NPTEL & SWAYAM in their routine classroom Teaching.

The University is doing commendable work in scientific research as visible from the citations per paper through SCOPUS and Web of Science.

The University has many accomplishments over these years which include accreditation by NAAC with 'A+' grade, NIRF University Ranking 54.

University also figured consecutively in the different Ranking systems including QS Asia Rankings, Times Higher Education, Education World Rankings, Asia University Rankings.

All the courses are being run on CBCS, whereas the Engineering subject are accredited by NBA, AICTE, and other courses are accredited with NCTE, PCI etc.

All these achievements helped the University to receive substantial funding from DST-FIST, UGC-SAP, RUSA, TEQIP, DST-PURSE etc and to develop academic collaboration with reputed National and International Institutions. Besides, the University also received a major contribution/support from Govt of Andhra Pradesh.



VISION

- To impart quality education to meet the global standards with a need based and outcome based approach.
- To establish Centres of Excellence in tune with NEP 2020.
- To extend eco-friendly innovative research adhering to international standards and sustenance by becoming a hub for innovative practices.
- To prioritise industry community university linkage to bring out employability skilled, quality and responsible citizens for the nation.



MISSION

The University is to create, disseminate and inculcate the knowledge in the domains of Higher Education. Being a reputed University of Academic Excellence, the University is striving to:

- Provide the quality learning and teaching environment for the well-being of students and to deliver entrepreneurial skills for young minds.
- Promote Academic Freedom, Transparency and Accountability to all the Stakeholders for a holistic growth and development of the Institution.
- Prosper an Intellectual culture that drives discipline and ideas to foster reputation for a Dynamic, Diverse, Equitable and Global University.
- Provide innovative solutions, process and products for social prosperity and promotion.
- Provide a vibrant learning environment, fostering innovation and creativity by Cutting Edge Research. Aspire as a National leader in developing educated contributors, career ready learners and globally competitive citizens.

- Offer need based, society driven, industrially relevant academic programmes with a view to make future ready civilians.
- Make a significant, consistent and sustainable contribution towards social, cultural and economic life. Adopt hassle free, distributed, committed and transparent governance.

The University is selected under RUSA component for Rs.100 crore. Under this program Centres of Excellence in (i) Nano & Micro Satellite (ii) Earth & Atmospheric Sciences (iii) Material Sciences (iv) VLP Technologies (v) Herbal Drug Development (vi) Psycho & Bio Sciences (viii) Water Resources and (ix) Bio Energy. University is having National facilities (UGC-SVU centre for MST Radar Applications) of repute and selected under Centre for Potential of Excellence in a particular area(CPEPA) by UGC, New Delhi and awarded and with Centres for Advanced Study (UGC-CAS). University was awarded based on research output DST-PURSE program.

Several departments have received Special Assistance Programmes (SAP) of UGC, New Delhi and also received fund under FIST program of DST, New Delhi to improve infrastructural facilities. Most of the faculties have obtained research grants from various national funding agencies like UGC, DST, DBT, CSIR, ICMR, ICSSR, BRNS, ISRO, MNES, MoES, MoEF and DRDO and foreign financing such as UNESCO, UK-DFID, ICRISAT, European Commission Programme ERASMUS MUNDUS. Utilizing these impressive funding, the faculty of the University have proactively interacted with Industry, Academic and Research Institutes in National and International level and entered into collaborative research agreements through MoUs (Memorandum of Understanding) to conduct research work in frontier areas of national & International importance.

The students belonging to socially and economically backward communities and those who are economically poor get State and Central Government Welfare Scholarships. Fellowships and Scholarships are offered to research students of the campus by the University and also by the UGC, CSIR, DAE, ICMR, ISRO, ICAR, ICPR, ICHR, ICSSR, DST, DRDO, SRNS and Rashtriya Sanskrit Sansthan.

The University central library is the major resource centre that provides information for research students and faculty. It provides unlimited access to the UGC INFONET e-resources and e-journals through UGC INFONET Digital Library Consortium. The library is kept open from 8.00 am till 10.00 pm on all working days and from 10.00 am to 5.00 pm on Sundays and public holidays besides the addition of latest books related to both teaching and research in the main library, most of the departments have developed departmental libraries by utilizing the grant from the University or from special assistance received from funding agencies like UGC, DST, etc. A Digital Library for PhD Theses submitted to the University has been designed using DSpace, an Open Source Software developed by HP and MIT, USA. 3,000 PhD Theses have been digitalized and uploaded to the Shodhganga database. This gives easy access to the PhD theses and research documents.

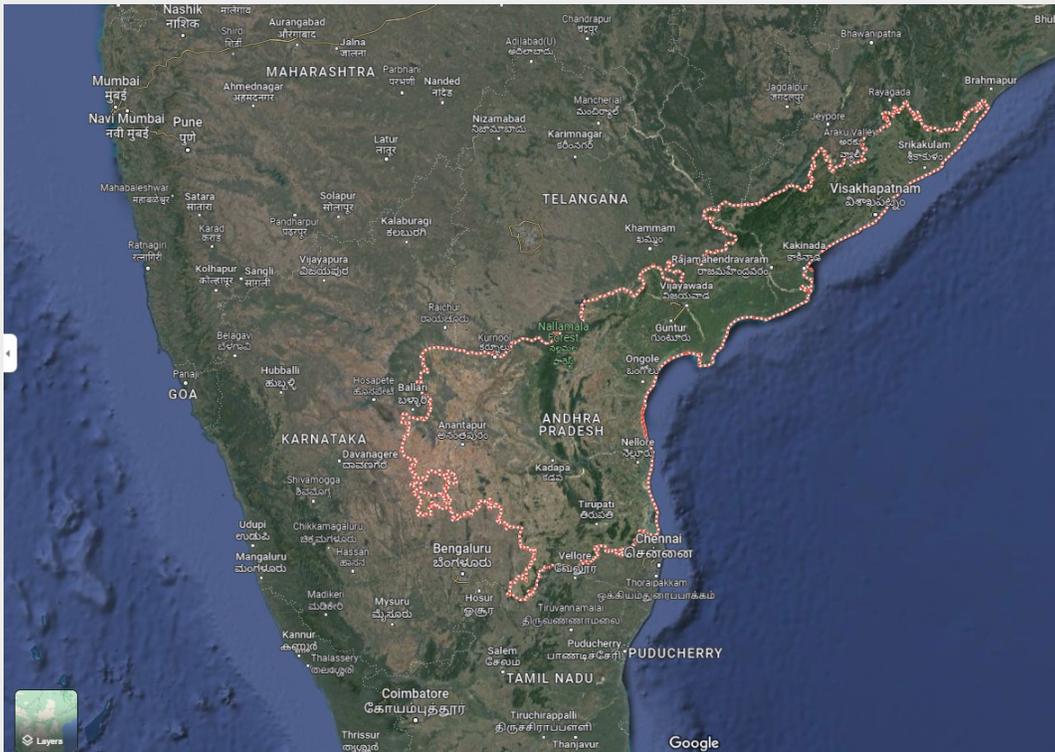
The University provides residential facilities to research scholars, Post-Doctoral fellows and other researchers in the hostels specially earmarked for them on the campus. Summer fellows, research associates, visiting scientists and faculty researchers from other universities and academics are provided accommodation in the university guest house and Academic Staff college guest house. The university campus is completely Wi-Fi connected. The university provides computer and uninterrupted internet facilities for research students, fellows as well as faculty on the campus in all the blocks and laboratories. Direct internet facility and common internet hubs are set-ups near the hostels and quarters on the campus to provide internet access free of cost.

To further enhance the status of the University to compete with the top University at National and Global level through continued development during, additional Buildings for E-Class Rooms, Establishment of Incubation Centres, On-line Examination System/expansion of Laboratories to meet the requirements of new Courses are in the pipeline. Besides meeting the infrastructure facilities of office, Separate Hostels for Boys and Girls, Cultural Centre and world Class Gymnasium and Sports facilities are being created. International Students Canteen, Digital Library, Wi-Fi Connectivity, Networking, Smart Campus, Air-Conditioned Auditorium, Development of Greenery and State of the modern art furniture in classrooms, faculty rooms, offices, Guest House and Auditorium are under progress.

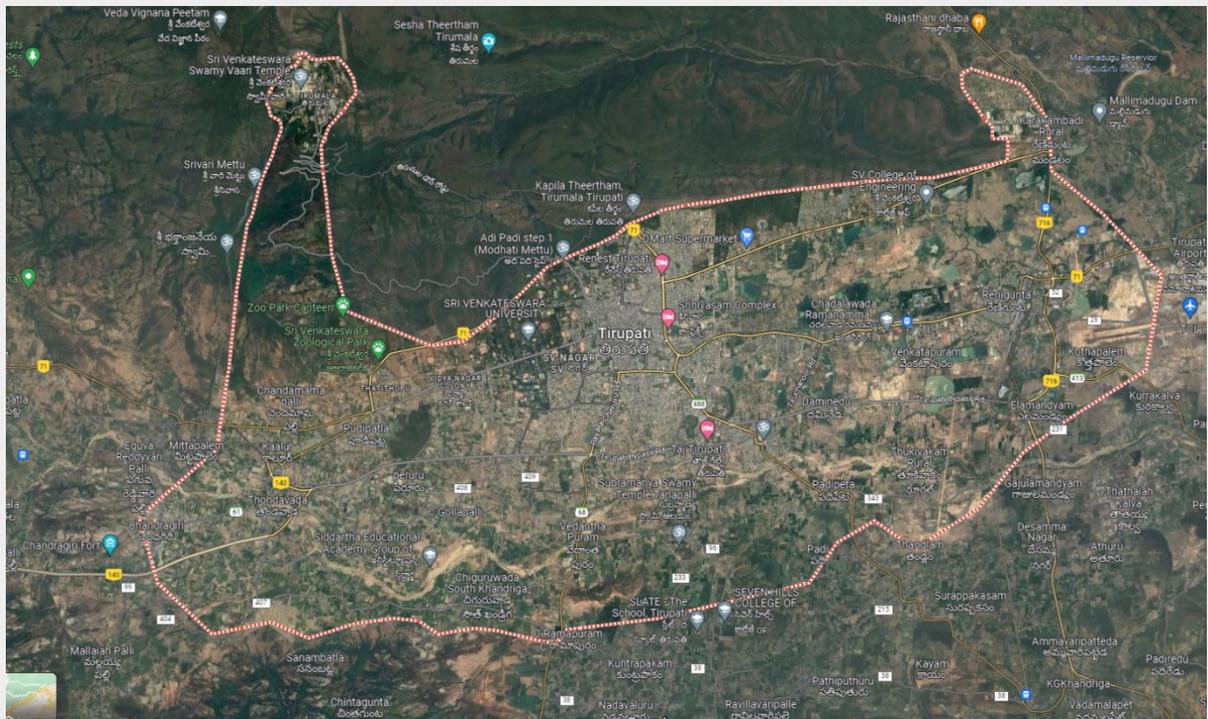
UNIVERSITY SATELLITE VIEW



INDIA



ANDHRA PRADESH



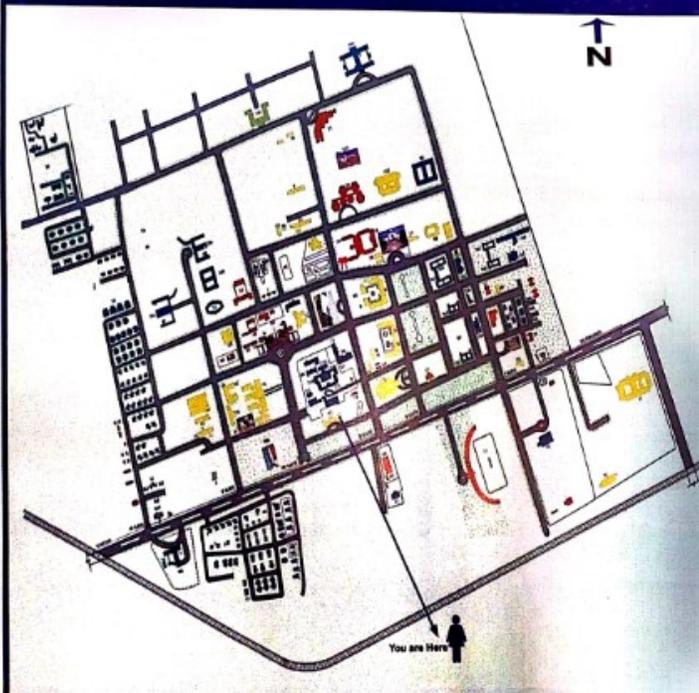
TIRUPATI



SRI VENKATESWARA UNIVERSITY



SRI VENKATESWARA UNIVERSITY MASTER PLAN



- | | | |
|--|---|--|
| 1. ADMINISTRATIVE BUILDING | 31. JAGAPATI GUEST HOUSE | 76. UNIVERSITY COLLEGE MEN'S HOSTEL |
| 2. ANDRA BANK | 40. LECTURE THEATRE COMPLEX | A.A.J.M.G.P.I. |
| 3. ANDRA BANK ZONAL OFFICE | 41. LIBRARY | B.G.A.P.L.A.C.H.I. |
| 4. ARTS BLOCK BUILDING | 42. MECHANICAL ENGINEERING BUILDING | C.A.M.P.O.N.G.I. |
| 5. ALTECH GUEST HOUSE | 43. MECHANICAL ENGINEERING LAB | C.E.E.H.W.D.R. |
| 6. ANKENITY CENTRE | 44. BIOMATERIAL ENGINEERING DEPARTMENT BUILDING | E.V.E.W.O.R.D.R. |
| 7. ACADEMIC STAFF QUARTERS | 45. NCB DEPARTMENT BUILDING | P.P.P.S.W.A.S.O.N.I. |
| 8. ANIMAL HOUSE | 46. NST RANGA GUEST HOUSE | S.H.E.E.A.C.H.I. |
| 9. BIOCHEMISTRY | 47. NATURAL SCIENCES BUILDING | V.V.E.N.K.A.T. |
| 10. BOTANICAL GARDEN | 48. NCC OFFICE | |
| 11. CAMPUS SCHOOL | 49. NCC GROUP HEAD QUARTERS | 77. UNIVERSITY COLLEGE WOMEN'S HOSTEL |
| 12. CANTINE BUILDING | 50. NCC NAGAR | A.R.S. BLOCK I |
| 12.A. A.D. BUILDING CANTINE (HANNAKORAN) | 51. NEWPU PLAZA | A.S.S. BLOCK |
| 12.B. ENGINEERING COLLEGE (POORNA) | 52. NON-RESIDENTIAL STUDENTS CENTRE | C.D.S. BLOCK |
| 12.C. MAN COLLEGE (SAMPURNA) | 53. NEW BRUNNEN | D.BLOCK IV |
| 13. CHEMICAL ENGINEERING BUILDING | 54. O.P. BUILDING | E.A.T.O.S.E.S. DRING |
| 14. CIVIL AND ELECTRICAL LABORATORIES | 55. PUL. ENGINEERING HOSTEL | E.V.O.L.O.P.T. |
| 15. COMPUTER CENTRE | 56. PHYSICAL SCIENCES BUILDING | 78. V.C.C. C.B.V.C. BLOCK BANGLOW |
| 16. DEPARTMENT OF DISTANCE EDUCATION | 57. PRANAKAM GANAPATHI BUILDING | 79. VIKRAMA TRAPPE |
| 17. DEPARTMENT OF LAW | 58. PRINTING PRESS | 80. WARDEN'S QUARTERS |
| 18. ELECTRICAL CONTROL ROOM | 59. POLICE STATION | 81. WARDEN'S HALL |
| 19. ELECTRONICS AND COMMUNICATION ENGINEERING | 60. POLICE GUEST OFFICE | 82. WARDENWORKS DEPT. |
| 20. ENGINEERING COLLEGE HOSTELS | 61. POST OFFICE | 83. WARDENING AGENCIES HOSTEL WITH 14 AY CARE CENTRE |
| 21. 20.A. KONTHAKKARA | 62. SCIENCE CONGRESS HALL | 84. WOMEN'S HOSTEL ANOTHER II PLAN SPECIAL SCHEME |
| 22. 20.B. KONTHAKKARA HOSTEL BLOCKS | 63. SENATE HALL | 85. WATCHMEN'S BATH |
| 23. ENGINEERING COLLEGE MAN BUILDING | 64. SERICULTURE DEPARTMENT | 86. CENTRE FOR SAIL REARING & EXPERIMENTAL INFECTION |
| 24. ENGINEERING COLLEGE WOMEN STUDENT HOSTEL | 65. S.G.PURAM QUARTERS | 87. NANCYLY ELEMENTARY SCHOOL |
| 25. ENGINEERING COLLEGE WORK SHOP | 66. SRIKANYASA AUDITORIUM | 88. SECURITY OFFICE FROM |
| 26. ENGL. DEPT. STORES & TRANSPORT WORKS SHOPS | 67. STATE BANK OF INDIA | 89. RECREATION HALL FOR WOMEN |
| 27. FACULTY CLUB | 68. CO-OPERATIVE STORES | 90. NST RANGA QUARTERS |
| 28. GAS HOUSE | 69. S.V.U. COLLEGE MESSES FOR MEN | 91. PAVANASARMA BUILDING |
| 29. GREEN HOUSE | A.M.E.S.S. | 94. FISH POND |
| 30. GYMNASIUM BUILDING | B.M.E.S.S. | 95. SWIMMING POOL |
| 31. GEOGRAPHY BUILDING | C.M.E.S.S. | 96. SILK WORM REARING CENTRE |
| 32. GARAGES | D.M.E.S.S. | 97. PLAY FIELD |
| 33. GENERATOR ROOM | | 98. MEN'S HOSTEL |
| 34. HEALTH CENTRE | 70. KITCHEN & DINING | 99. PHYSICALLY CHALLENGED STUDENTS |
| 35. HEALTH CENTRE QUARTERS | 71. S.V.U. GUEST HOUSE | 100. ENGINEERING COLLEGE HOSTELS |
| 36. HUMAN RIGHTS DEPARTMENT BUILDING | 72. S.V.U. JUNIOR COLLEGE | 101. INTERNET HUB |
| 37. I.A.S.E. BUILDING | 73. S.V.U. STADIUM | 102. ACADEMIC BUILDING |
| 38. INSTRUMENTATION CENTRE | 74. TELUGU AND PSYCHOLOGY DEPARTMENT | 103. CONFERENCE CENTRE |
| | 75. UNIVERSITY COLLEGE MAN BUILDING | 104. COLLEGE OF MANAGEMENT STUDIES |
| | | 105. OPEN AIR THEATRE |

SRI VENKATESWARA UNIVERSITY MAP



MAIN ENTRANCE OF SRI VENKATESWARA UNIVERSITY





ADMINISTRATIVE BUILDING



SRINIVASA AUDITORIUM



UNIVERSITY LIBRARY



**SRI VENKATESWARA STADIUM
TARAKARAMA PAVILLION**



OPEN AIR AUDITORIUM



DEPARTMENT OF PHYSICAL EDUCATION



**PRAKASAM BHAVAN
COLLEGE OF ARTS DEPARTMENT**



PHYSICAL SCIENCES BUILDING



**Dr. D.J. REDDY BHAVAN
NATURAL SCIENCES BUILDING**



ENGINEERING DEPARTMENT



**VAMANARAO BHAVAN
HUMANITIES DEPARTMENT**



OLD MBA BUILDING



DIRECTORATE OF DISTANCE EDUCATION



HEALTH CENTRE



DEPARTMENT OF POPULATION STUDIES AND SOCIAL WORK



DEPARTMENT OF PSYCHOLOGY



**Prof. CHOPPALA RATNAM BHAVAN
DEPARTMENT OF COMMERCE**



INSTITUTE OF ADVANCED STUDY IN EDUCATION DEPARTMENT



**ANDHRA BANK SCHOOL OF MANAGEMENT
DEPARTMENT OF COMMERCE, MANAGEMENT AND COMPUTER SCIENCE**



PHARMACEUTICAL SCIENCES DEPARTMENT



SIEMENS



DST PURSE CENTRE



S.V. UNIVERSITY PRESS



STATE BANK OF INDIA S.V.U. CAMPUS



UNION BANK OF INDIA



S. V.U. COMPUTER CENTRE



S.V.UNIVERSITY V C BUNGALOW



S.V.UNIVERSITY GUEST HOUSE



JANARDHAN BHAVAN



WOMEN'S HOSTEL



MEN'S HOSTEL

SRI VENKATESWARA UNIVERSITY :: TIRUPATI

Name of work:- Plinth Area of SVU Buildings

Sl.No	Name of the Building	Plinth Area in Sft
1	AD BUILDING	51110
2	PRAKASAM BHAVAN	96990
3	DDE BUILDING	15387
4	JHANARDHAN BHAVAN	8300
5	OLD MBA BUILDING	25680
6	PRESS BUILDING	14897
7	PHYSICAL SCINECES BLOCK	90168
8	NATURAL SCINECES BLOCK	85595
9	GEOGRAPHY SCINECES BLOCK	7532
10	VAMANA RAO BHAVAN	39500
11	CIVIL ENGINEERING & EEE BUILDING	32280
12	ECE BUILDING	20121
13	CHEMICAL ENGINEERING	22198
14	MECHANICAL ENGINEERING	33140
15	HEALTH CENTRE	6240
16	PHYSICAL EDUCATION	13820
17	LAW & LIBRARY SCEIENCE	5380
18	ORI BUILDING	18992
19	POPULATION STUDIES &BIO-TECHNOLOGY – (Lecturetheatre Complex)	17635
20	BIO- CHEMISTRY & MICROBIOLOGY	24726
21	DST PURUSUE PROGRAM	
22	VIROLOGY BUILDING	8870
23	PHARMACY BUILDING	12912
24	CMCS BUILDING	30450
25	COMPUTER SCIENCE	10737
26	SEAPS (AUDITORIUM OPP)	2903
27	SVU COMPUTER CENTRE	5268
28	USIC BUILDING	2634
29	SVU CAMPUS SCHOOL	22273
30	HOSTELS	
	a) MEN’S HOSTEL (College of Arts & Sciences) 1 to 10	218196
	b) MEN’S HOSTEL (College of Engineering) 1 to 4	132505
	c) WOMEN’S HOSTELS(College of Arts, Sciences&Engineering) 1 to 8	110316
31	QUARTERS	
	Red Buildings 6 Nos	12000

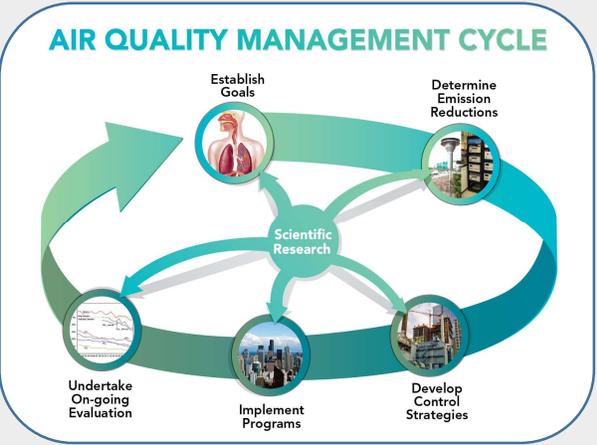
Twin Quarters 12 nos	4623
Readers Quarters 8 Nos (III SET)	14040
Lecturers Qtrs (I SET)	24000
Lecturers Qtrs (III SET)	16109
Superintendents & Qtrs	6000
Superintendents & N.T. Qtrs	5456
Warden & Deputy Warden Qtrs	1900
Dy. Warden Qtrs 4 Nos	4508
Servant Qtrs for Engg. Hostels	13520
Officers Qtrs	3308
UDC's & LDC's Qtrs	9108
Lecturers Qtrs (IV SET)	13990
Attenders & Peons Qtrs	2050
II Type I Qtrs for Professors/Readers	18383
4 Type I Qtrs for Professors/Readers	6719
4 Type I Qtrs for Lecturers	9568
Teachers Hostel - 8 Blocks - 2 qtrs Each	12196
Teachers qtrs - 3 blocks	4354
Staff Quarters	14467
Total	1383054



ENERGY CONSERVATION



BIODIVERSITY CONSERVATION



AIR QUALITY MANAGEMENT



WASTE MANAGEMENT



**WATER AND WASTE WATER
MANAGEMENT**



LEGISLATIVE COMPLIANCE

2.WASTE MANAGEMENT

a. SOLID WASTE MANAGEMENT

The University and colleges pay dedicated focus to see that minimal waste is generated in the campus. Solid waste is segregated as bio degradable and non-degradable and handed over to Tirupati Municipal corporation as a part of Swachh Bharat initiative and Clean and Green Tirupati. All Departments and classrooms are provided with dustbins for dry wastage disposal. Segregation of waste in to dry and wet waste from the separately allotted dustbins is done in strategic locations, thus maintaining the Campus clean and Eco-friendly. The use of plastic carry bags, cups and laminated paper plates are prohibited on the campus. Students and staff are advised to bring cloth bags. Workshops and awareness programmes were organized in the University.



BANNER ON SOLID WASTE MANAGEMENT



BAN ON PLASTIC

ఘనవ్యర్థాల నిర్వహణ పర్యావరణానికి ఎంతో మేలు : ఆచార్య మాధవి



విశాలాంధ్ర - తిరుపతి
 ఎస్వీయూ: పారిశ్రామిక విప్లవం
 నేపథ్యంలో సమాజంలో ఘన
 వ్యర్థాల యాజమాన్య నిర్వహణ
 పద్ధతులు పాటించడం ద్వారా

పర్యావరణానికి ఎంతో మేలు కలుగు తుందని శ్రీ వేంకటేశ్వర విశ్వవిద్యాలయం రసాయన శాస్త్రం అధ్యాపకులు ఆచార్య జి.మాధవి పేర్కొన్నారు. ఆచార్య మాధవి ఆధ్వర్యంలో ఎంఓ ఈఎఫ్, సిసి ప్రాజెక్టులో భాగంగా రసాయనశాస్త్ర విభాగం విద్యార్థులు, ఎన్ సిసి, ఎన్ ఎస్ ఎస్ విద్యార్థులతో సంయుక్తంగా ఆదివారం ఎస్వీయూ లోని రసాయన శాస్త్ర విభాగం నుంచి తుమ్మలగుంట వరకు ఘన వ్యర్థాల నిర్వహణపై అవగాహన ర్యాలీ నిర్వహించారు. ఈ కార్యక్రమంలో ఎస్వీయూ అధ్యాపకులు రెడ్డి భాస్కర్ రెడ్డి, సరిత, ఉమా మహేశ్వర్ రెడ్డి, శ్రీనివాసులు రెడ్డి, తుమ్మలగుంట సర్పంచ్ సుబ్బారెడ్డి, పరిశోధకులు, విద్యార్థులు, అంగన్వాడీ కార్యకర్తలు, ప్రాథమిక ఆరోగ్య కేంద్రం సిబ్బంది తదితరులు పాల్గొన్నారు.

PAPER CLIPPING ON SOLID WASTE MANAGEMENT



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Azadi Ka
Amrit Mahotsav



SRI VENKATESWARA UNIVERSITY

Department of Chemistry, SVU College of Sciences, Tirupati.

Awareness Programme on "SOLID WASTE MANAGEMENT" in Rural Areas Around Tirupati



AWARENESS PROGRAMME ON SOLID WASTE MANAGEMENT



WASTE THROWN IN RESPECTIVE DUSTBINS

b. LIQUID WASTE MANAGEMENT

Next to air, water is the most important element for the preservation of life. Water is a finite commodity which, if not managed properly, will result in shortages in the near future. Water conservation can go a long way to help alleviate these impending shortages. Students are made aware that conserving water is equivalent to conserving their future. Drinking water from the tap, and refilling bottle as often as the students need is one of the best practices followed at SVU Disposable bottles are not allowed. Sustainable liquid waste treatment is adopted in campus through bio remediation using microorganism metabolism which helps to minimize the chemical and biological load of domestic sewage and is good for gardening purpose.



LIQUID WASTE MANAGEMENT

c. BIOMEDICAL WASTE MANAGEMENT

In the S.V University biomedical waste is produced in the labs where animals are using for research purpose. "Bio-medical waste" means wastes that are generated during diagnosis, treatment or immunization of human beings or animals or research activities or in the production or testing of biologicals. Medical waste includes all the waste generated from the Health Care Facility which can have adverse effects on the human health or to the environment in general if not disposed properly. In general, the quantity of biomedical waste will be 5% to 10% of total waste generated from the campus. Though the amount of waste is very negligible amount, the carcass of the animals are stored in the -20°C for the time being. After sufficient amount of carcass stored university hand over to Tirupati Municipal Corporation for Biomedical waste management. Workshops on Bio Medical Waste Management Rules, procedures were conducted in the University.



(i) BIO MEDICAL WASTE MANAGEMENT AWARENESS PROGRAMME.



(ii) BIO MEDICAL WASTE MANAGEMENT AWARENESS PROGRAMME.



PAPER CLIPPING ON BIO MEDICAL WASTE AWARENESS



ANIMAL HOUSE IS ONE OF THE SOURCES OF BIOMEDICAL WASTE

d. E-WASTE MANAGEMENT

With the proliferation of electronics also comes the challenge of their proper disposal. SV University has very efficient mechanism to dispose E wastes generated from various sources. E-wastes are generated from computer laboratories, electronic labs, Physics Labs, Chemistry Lab, Biotech Labs, Academic and Administrative Offices. The e-waste includes out of order equipment's or obsolete items like lab instruments, circuits, desktops, laptops and accessories, printer, charging and network cables, Wi-Fi devices, cartridges, sound systems, display units, UPS, Biometric Machine, scientific instruments etc. All these wastes are put to optimal use. All such equipment's which cannot be reused or recycled is being disposed off through authorized vendors. Instead of a new procurement Buy-Back option is preferred for technology up gradation. The University is grappling with ways to efficiently and cost-effectively handle the issue of electronic waste, ore-waste, on campus. It's normal for people to discard of products due to normal wear and tear, but technological advancements have accelerated e-waste growth as students, faculty and administrators frequently upgrade to better gadgets. This surge has forced University administrators to carefully examine and address the environmentally responsible disposal of these products on a campus-wide scale. E Waste collected is stored and disposed off annually. Students are also made aware of E-Waste issues and its safe disposal.



ATHLETIC SCULPTURE



E-Waste Collection



f.HAZARDOUS CHEMICALS AND RADIOACTIVE WASTE MANAGEMENT

Campus is free from any kind of hazardous waste. Ideally, collection, transportation and proper handling of chemicals begin with understanding the potential hazards related to their use. All stakeholders, especially from Academic departments and laboratories are responsible for disseminating information on hazardous materials being used in the facility. Various types of chemicals are used in chemistry labs for number of experiments in the University. Some might be harmful while others may not. Some of the dangerous chemicals in lab are Acetonitrile, Chloroform, Dimethyl sulfoxide, Formaldehyde, 2-mercaptoethanol, Methanol, Sodium Azide, Sodium Hydroxide, Sodium hypochlorite, and Tetrahydrofuran. Highly toxic chemicals such as Arsenic trioxide, Chlorine, Hydrogen cyanide, Nitrous oxides, Phosgene, Potassium cyanide, Sodium arsenate, and Sodium cyanide which are dangerous and hence they are handled with care.

General procedures while working with hazardous chemicals -

1. Personal behaviour.
2. Minimising exposure to hazardous chemicals.
3. Avoiding Eye injury.
4. Avoiding ingestion of hazardous chemicals.
5. Avoiding inhalation of hazardous chemicals.
6. Avoiding injection of hazardous chemicals.
7. Minimising skin contact.
8. Storage of chemicals.
9. Use & maintenance of equipment and glassware.
10. Working with scaled-up reactions.
11. Responsibility for unattended experiments & working alone.
12. Chemistry demonstration & Magic shows.
13. Responding to accidents and emergencies.
14. Handling the accidental release of hazardous substance.

Four fundamental principles followed in the labs are -

1. Plan a head: Determine the potential hazards associated without an experiment before beginning.
2. Minimize exposure to chemicals:

Do not allow laboratory chemicals to come in contact with skin. Use laboratory chemical hoods and other ventilation devices to prevent exposure to airborne substance whenever possible.

3. Do not underestimate hazards or risk:

Assume that any mixture of chemicals will be more toxic than its most toxic component. Treat all new compounds and substances of unknown toxicity as toxic substances.

4. Be prepared for accident:

Before beginning an experiment know what specific action to take in the event of accidentally release of any hazardous substance. Post telephone number to call in an emergency or accident in a prominent location. Know the location of all safety equipment and the nearest fire alarm and telephone.

Be prepared to provide basic emergency treatment. Keep your co-workers informed of your activities so they can respond appropriately.

Common Laboratory chemicals & their Hazard class-

1. Oxidizers: inorganic Nitrates, Nitrites, permanganates, chlorates, perchlorates, iodates, periodates, persulfates, chromates, hypochlorite, peroxides, sodium nitrates, sodium nitrites, Ammonium persulfate, sodium peroxides.
2. Oxidizing acids: Nitric acid, perchloric acids, Hydrogen peroxide, periodic acid, chromic acids.
3. Flammable liquids: methanol, ethanol, acetone, xylene, toluene, ethyl acetate, tetrahydrofuran, ethyl ether, Benzene, Dimethylformamide, Hexane.
3. Inorganic bases: metal hydroxides such as sodium, potassium, calcium, nickel hydroxide Ammonium hydroxide.
4. Organic bases: Amines such as Ethanolamine, tributylamine.
5. Acid flammable liquids: Glacial acetic acid, acetic acid, acetic anhydride, formic acid, propanoic acid.
6. Organic acids: Butyric acid, pentanoic acid.
7. Inorganic acids: Hydrochloric acid, Sulfuric acid, Phosphoric acids, Hydrofluoric acid.
8. Poisons: Acrylamides, chloroform, Formaldehyde, phenol, Glutaraldehyde, methylene chloride,
9. Toxic metals such as silver chloride, mercury acetate, barium carbonate, lead acetate, cadmium sulfate.
10. Cyanides
11. sulfides
12. Pyrophorics (air reactives)



Hazardous Chemicals kept separately in the Laboratory

SOLID WASTE AUDIT

Solid waste is the unwanted or useless solid material generated from the human activities in residential, industrial or commercial area. Solid waste management reduces or eliminates the adverse impact on the environment and human health. A number of processes are involved in efficiently managing waste for an organization. It is necessary to manage the solid waste properly to reduce the load on waste management system. Unavailability of proper waste management practices may lead to environmental pollution. A waste management audit helps educational institutes to efficiently and responsibly dispose of the waste that is generated every day. By designing a more efficient waste disposal program through a waste audit, we can enhance recycling practices

Solid waste generation and its management is a burning issue in current days. The rate of generation of solid waste is very high and yet we do not have adequate technology to manage the generated waste. Unscientific handling of solid waste can create threats to public health and environmental safety issues. Thus, it is necessary to manage the solid waste properly to reduce the load on waste management system. The purpose of this audit is to find out the quantity, volume, type and current management practice of solid waste generation in Sri Venkateswara University campus. This report will help for further solid waste management and to go for green campus development. The waste generated from Sri Venkateswara University campus includes paper waste, plastic waste, biodegradable waste, construction waste, glass waste, biomedical waste and other wastes.

TABLE: CATEGORY WISE SOLID WASTE GENERATION AT UNIVERSITY (KG / MONTH)

Category of waste	Paper waste	Plastic waste	Biodegradable waste	Construction waste	Glass waste	Other waste	Total waste kg/month	Total waste kg/year
Quantit	784	75	2985	123	23	132	4122	49464
percentage	19.02	01.82	72.41	02.98	00.55	03.20	100	



GRAPH - SOLID WASTE GENERATION AT UNIVERSITY CAMPUS



BIOGAS PLANT

The solvents used in the laboratories are reused after distillation to minimize the use of solvents. The waste solvents are separated as halogenated and non-halogenated and transferred to plastic containers. To prevent heat generation and gas evolution or other reaction, compatibility of the waste is checked carefully.

To prevent accidental spillage of chemicals the laboratory wastes are subjected to process through three stages of waste management. Stage-I gravel, Stage-II sand, Stage –III coal. The three chambers are replenished with new materials after a period of six months.

There is a separate room for the Nuclear Laboratory where radiation hazard is displayed for safety measures. The harmful radiations are radiated by appropriate routes. Containers containing radioactive elements are properly lead sealed.

Wearing appropriate lab coats, gloves and face shields while working with nano materials. The hazardous chemical wastes are kept in separate containers. Later they are filtered and drained out.

Biodegradable waste consists of Leaf litter, food waste, vegetable and fruit waste etc. is decomposed in composting, vermicomposting and bio-gas units established in the University campus. Other dry waste is collected by Waste collection vehicles of Tirupati Municipal Corporation. Overall University campus is maintained neat and clean throughout. Various awareness programmes were organized in and around campus for effective management of solid waste.

3.GREEN AUDIT

Green Audit, a Tool for Environmental Protection and Conservation

The modernization and industrialization are the two important outputs of twentieth century which have made human life more luxurious and comfortable. Simultaneously, they are responsible for voracious use of natural resources, exploitation of forests and wildlife, producing massive solid waste, polluting the scarce and sacred water resources and finally making our mother Earth ugly and inhospitable. Today, people are getting more familiar to the global issues like global warming, greenhouse effect, ozone depletion and climate change etc. Now, it is considered as a final call by mother Earth to walk on the path of sustainable development. The time has come to wake up, unite and combat together for sustainable environment.

Considering the present environmental problems of pollution and excess use of natural resources, Hon. Prime Minister, Shri. Narendra Modi has declared the Mission of Swachh Bharat Abhiyan. Also, University Grants Commission has mentioned “Green Campus, Clean Campus” mission mandatory for all higher educational institutes. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent.

Green Audit is the most efficient ecological tool to solve such environmental problems. It is a process of regular identification, quantification, documenting, reporting and monitoring of environmentally important components in a specified area. Through this process the regular environmental activities are monitored within and outside of the concerned sites which have direct and indirect impact on surroundings. Green audit can be one of the initiative for such institutes to account their energy, water resource use as well as wastewater, solid waste, E-waste, hazardous waste generation. Green Audit process can play an important role in promotion of environmental awareness and sensitization about resource use. It can create consciousness towards ecological values and ethics. Through green audit one can get direction about how to improve the condition of environment.

Need of Green auditing:

Green auditing is the process of identifying and determining whether institutions practices are eco-friendly and sustainable. Traditionally, we are good and efficient users of natural resources. But over the period of time excess use of resources like energy, water, chemicals are become habitual for everyone especially, in common areas. Now, it is necessary to check whether our processes are consuming more than required resources? Whether we are handling waste carefully? Green audit regulates all such practices and gives an efficient way of natural resource utilization. In the era of climate change and resource

depletion it is necessary to verify the processes and convert it into green and clean one. Green audit provides an approach for it. It also increases overall consciousness among the people working in institution towards an environment.

Goals of Green audit:

University has conducted a green audit with specific goals as:

- Identification and documentation of green practices followed by university.
- Identify strength and weakness in green practices.
- Conduct a survey to know the ground reality about green practices.
- Analyze and suggest solution for problems identified from survey.
- Assess facility of different types of waste management.
- Increase environmental awareness throughout campus.
- Identify and assess environmental risk.
- Motivates staff for optimized sustainable use of available resources.
- The long-term goal of the environmental audit program is to collect baseline data of environmental parameters and resolve environmental issue before they become problem.

Students are the major strength of any academic institution. Practicing green actions in any educational institution will inculcate the good habit of caring natural resources in students. Many environmental activities like plantation and nurturing saplings and trees, Cleanliness drives, Rain water harvesting, etc. will make the students good citizen of the country. Through Green Audit, higher educational institutions can ensure that they contribute towards the reduction of Global warming through Carbon Footprint reduction measures.

Benefits of Green Audit to an Educational Institute:

There are many advantages of green audit to an Educational Institute:

- It would help to protect the environment in and around the campus.
- Recognize the cost saving methods through waste minimization and energy conservation.
- Find out the prevailing and forthcoming complications.
- Empower the organization to frame a better environmental performance.
- It portrays good image of institution through its clean and green campus.

Objectives of Green audit:

The main objective of Green Audit at Sri Venkateswara University is to make a complete assessment of the environmental indicators in the campus and make recommendations for implementation in the campus for better environmental management. To make a complete assessment of the environmental indicators in the campus and make recommendations for implementation in the campus for better environmental management.

1. To assess the quality of the water and recycling of waste water in the university campus
2. Estimation of energy & fuel usage and evaluating the carbon foot print of the university on a full attendance day.
3. Evaluation of the measures implemented by university in reducing the Carbon Footprint.
4. To monitor the generation of solid waste and adopting strategies for its recycling.
5. To evaluate the biodiversity of flora and fauna of the campus and providing a database for corrective actions and future plans.

Water and Waste water Audit

Water which is precious natural national resource available with fixed quantum. The availability of water is decreasing due to increasing population of nation, as per capita availability of utilizable water is going down. Due to ever rising standard of living of people, industrialization, urbanization, demand of fresh water is increasing day by day. The unabated discharge of industrial effluent in the available water bodies is reducing the quality of these ample sources of water continuously. Hence, the national mission on water conservation was declared by the then Hon. Prime Minister Narendra Modi as 'Jal Shakti Abhiyan' and appealed to all citizens to collectively address the problem of water shortage, by conserving every drop of water and suggested for conducting water audit for all sectors of water use.

Water audit can be defined as a qualitative and quantitative analysis of water consumption to identify means of reducing, reusing and recycling of water. Water Audit is nothing but an effective measure for minimizing losses, optimizing various uses and thus, enabling considerable conservation of water in irrigation sector, domestic, power and industrial as well. A water audit is a technique or method which makes possible to identify ways of conserving water by determining any inefficiencies in the system of water distribution. The measurement of water losses due to different uses in the system or any utility is essential to implement water conservation measures in such an establishment.

Importance of Water audit

It is observed that a number of factors like climate, culture, food habits, work and working conditions, level and type of development, and physiology to determine the requirement of water. The community which has a population between 20,000 to 1,00,000 requires 100 to 150 liters per person (capita) per day. The communities with a population can consume over 1, 00,000 requires 150 to 200 liters per person (capita) per day. As per the standards provided by WHO Regional office for South East Asia Schools require 2 liters per student; 10-15 liters per student if water-flushed toilets.

Water usage can be defined as water used for all activities which are carried out on campus from different water sources. This includes usage in all residential halls, academic buildings, on campus and on grounds. Wastewater is referred as the water which is transported off the campus. The wastewater includes sewage, hostel and residential water used in cooking, showering, clothes washing as well as waste water from chemical and biological laboratories which ultimately going down in sink or drainage system.

University water resources

The Main water uses in the campus includes drinking, cleaning, toilets and gardening. The University campus has continuous water supply of 24/7 through AP Government Telugu Ganga project. In addition there are 10 numbers of water bore wells in Men and Women Hostels, Engineering college campus and university gardens. The campus has several water harvesting units to recharge ground water. The water requirement is calculated based on per person utility per day. Toilet usage -20 lts, Shower -20 lts, clothes washing- 20 lts, utensil washing – 10 lts, mopping and washing rooms– 10 lts, cooking – 5 litres, drinking - 2.5 lts and gardening – 30 lts.



BORE WELL



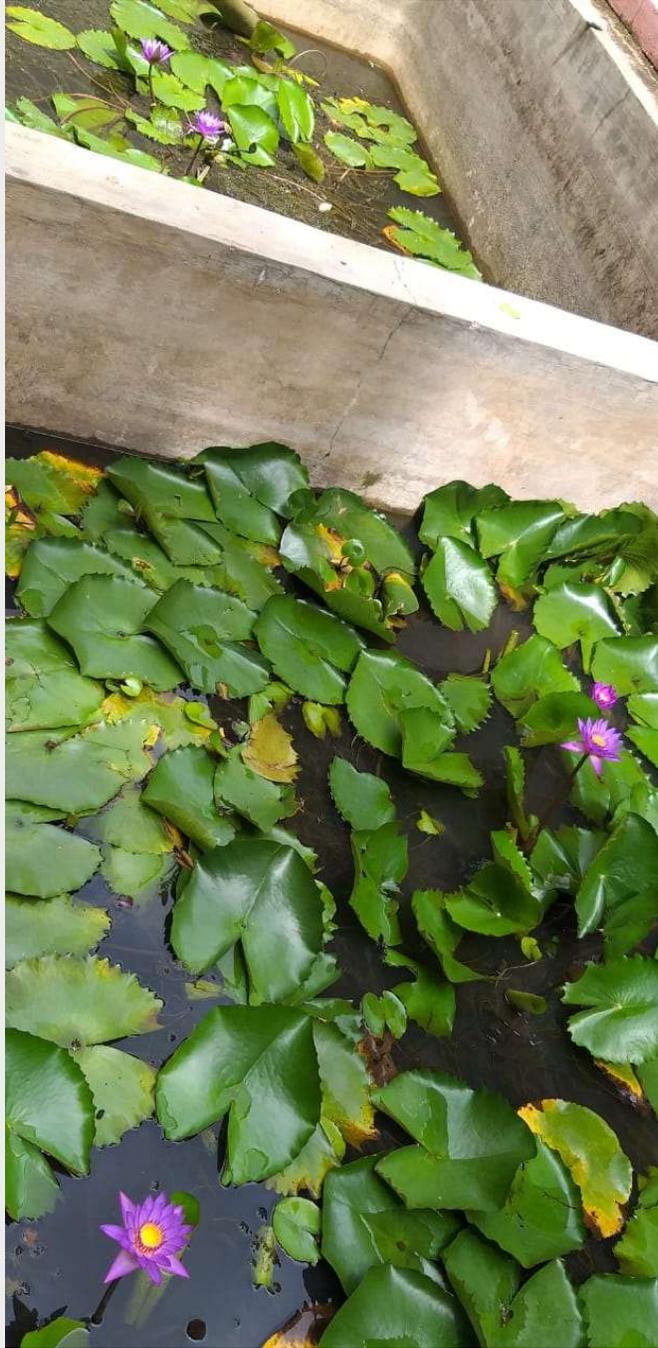
OPEN WELL

Rain Water Harvesting

Rainwater harvesting means capturing rain where it falls or capturing the run off of rain water in Sri Venkateswara University premises. Rainwater harvesting system, also called rainwater collection system or rainwater catchment system, technology that collects and stores rainwater for further use. The collected water is also kept clean by filtering and such design of facility that does not allow pollutants to mix with collected water. Rain water is harvested from terrace, and ground floor areas for reusing in watering of lawns. Surface runoff from various ground sources and terraces are collected, filtered and recirculated for gardening and washing purpose. Besides natural percolation tanks, concrete storage tanks have also been built and rain water has been stored after proper filtration paving the open places with concrete roads is avoided so that rain water can be percolated. The rainwater harvested during rains not only helps to save water from conventional sources, but also to save energy and reduce expenses incurred on transportation and distribution of water. Awareness programmes on water conservation and rain water harvesting have been conducted regularly through various service of the University. One of the rain water harvesting pit is seen near Post Office. Similar structures are seen at different locations within premises.



RAIN WATER HARVESTING PIT



RAIN WATER HARVESTING



RAIN WATER HARVESTING AT ACADEMIC BUILDING

Reusage of waste water:

Wastewater recycling is considered as the best option of water usage. The waste water generated is filtered through coarse filter system and is used for watering outdoor lawns, gardens, potted plants, cleaning of stair case, verandas, pavements and drive ways.



REUSAGE OF WASTE WATER

4. ENERGY AUDIT

Energy is one of the major inputs for the economic development of any country. The fundamental goal of energy management is to produce goods and provide services with the least cost and least environmental effect. Also it can be said as “the strategy of adjusting and optimizing energy, using system and procedure so as to reduce energy requirements per unit of output while holding constant or reducing total costs of producing the output from these systems”. The energy audit is key to a systematic approach for decision making in the area of energy management. It attempt to balance the total energy inputs with its use, and serve to identify all the energy streams in a facility.

According to Energy Conservation Act, 2001, Energy Audit is the verification, monitoring, and analysis of the use of energy including submission of a technical report containing recommendations for improving energy efficiency with cost-benefit analysis and an action planto reduce energy consumption.

Energy resources utilized by all the departments, support services and the administrative buildings of Sri Venkateswara University, Tirupati, Andhra Pradesh campus include electricity and liquid petroleum. Major use of the energy is at office, canteen, hostel and laboratories, for lighting, transportation, cooking and workshop instruments. Sri Venkateswara University has installed solar power plant having a capacity of 1.75 MW. Electricity is also supplied to the University campus by Andhra Pradesh Southern power Distribution Company Limited (APSPDCL).



SOLAR PANEL AT SVU ADMINISTRATIVE BUILDING



SOLAR PANEL AT SVU LIBRARY



SOLAR PANEL AT PRAKASAM BHAVAN

In Academics and Research, Solar dryer facility is available in the Department of Home Science. Food technology students and scholars conducted research projects using solar dehydration technology. Drying foods using solar energy helps in retaining the colour, Flavour and nutritional value to a large extent. It can minimize cost, wastage and increase the productivity in terms of quality and quantity. Hands on training was given to the students with the resource persons on solar dehydration. Various foods and food products were developed. The students undergone training programmes and internship in Society for Energy, Environment and Development (SEED) Hyderabad.

Solar dryers require a certain investment for the set-up of the appliance, but no expenditures for the fuel. The basic function of a solar dryer is to heat air to a constant temperature with solar energy, which facilitates extraction of humidity from foods inside a drying chamber. Ventilation is enabled at a constant rate through defined air inlets and outlets, small solar ventilators or temperature difference, either due to exposition or vertical height. In direct sun driers the food is put in boxes with a transparent lid. Additionally, the temperature in the drier is raised due to the greenhouse effect and the air exchange is regulated by vents. The food is not exposed to direct sunlight in indirect sun driers as the fresh air is heated separately from the food chamber. This method is preferable for drying foods which lose nutritional value when exposed to direct sunlight. Hybrid driers combine solar energy with a fossil fuel or biomass fuel. Solar drying has many advantages over open traditional drying like; Safe & hygienic, Free from insect and bird contamination, Clean & dust free products, more uniform quality products, Uniform color, texture, and appearance of the product, evenness in drying, moisture control to optimum levels, Nutrient retention especially beta carotene, yields high quality Products with better shelf life of the products.



SOLAR DRYING FACILITY IN THE DEPARTMENT OF HOME SCIENCE

Solar energy generated by solar panels are exported to the grid of electricity distribution utility of Southern Power distribution company of Andhra Pradesh Ltd. Direct savings in electricity bills are availed from electricity distribution utility on monthly basis.

The Energy and electricity audit aimed to cover the aggregate consumption of Electrical and Natural gas energy within the Sri Venkateswara University campus including academic and administrative blocks. In different hostels, LPG cylinders are primarily used for cooking purposes and the number of uses was also counted. Domestic LPG connections were not included in the present study. Within the campus, no other fossil fuel like coal-fire or firewood, etc based energy is used.



Certificate

HYM International Certifications Pvt. Ltd.

Certified that the Energy Management System of

SRI VENKATESWARA UNIVERSITY

Tirupati, Chittoor District - 517 502,
Andhra Pradesh, India

has been assessed and found to be in accordance with the requirements of the Energy standards

ISO 50001 : 2018

for the following scope of certification

IMPLEMENTATION OF ENERGY SAVING PRACTICES

Further information about the scope of this certificate and applicability of ISO 50001 : 2018 requirements may be obtained by consulting the organization.

Issue Date : 18/08/2022

1st Surveillance 17/08/2023

Renewal Date : 17/08/2025

2nd Surveillance 17/08/2024



Authorised Signature

Certificate No : **En9186414086**

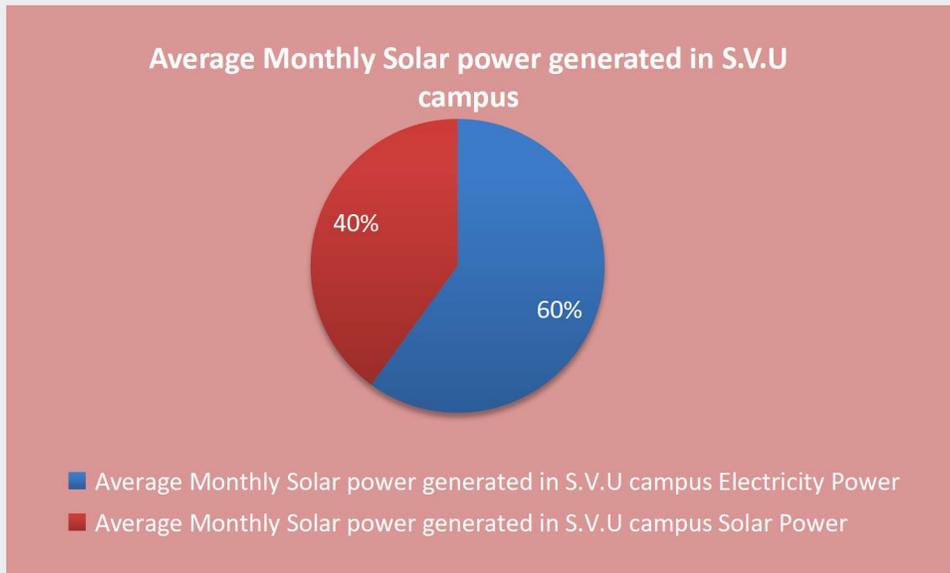
HYM International Certifications Pvt. Ltd

NOTE: This Certificate is Valid From 18/08/2022 to 17/08/2023

This is an accredited certificate authorized for issue by Accreditation Service for Certifying Bodies (Europe) Limited who have assessed MyHYM International Certifications Pvt. Ltd. against defined criteria and in cognisance of ISO 17021:2015 "Conformity Assessment - Requirements for bodies providing audit and Certification of management Systems".
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E-mail: siva@hymcertifications.com, Website: www.hymcertifications.com

ISO 50001 : 2018 CERTIFICATE FOR IMPLEMENTATION OF ENERGY SAVING PRACTICES



Monthly Solar power generated within S.V.U campus

Fossil fuels (such as petrol, diesel) contribute significantly to environmental pollution through emission of greenhouse gases into the atmosphere mainly as carbon dioxide. Vehicular emission is the main source of carbon emission in the campus, hence to document the various means of transportation that is practiced by the university members is important. The fuel energy audit determines the approximate use of petrol or diesel by the vehicles inside the university. It also includes the efforts taken by the university to conserve the fuel. The conventional source of fuel for the vehicle is petrol and diesel. Maximum students, teaching and non teaching staff of university and visitors use two wheeler and four wheeler vehicles. So, the data regarding fuel utilization for students, teaching and non teaching staff of university and visitor are monitored in the study.

Carbon Foot Print Analysis

Total number of students on the campus	- 4
Total number of regular faculty	- 206
Total number of Academic Consultants	- 239
Total number of non-teaching staff	- 900
Total number of 2 wheelers used	- 1147
Total number of electrical 2 wheelers	- 41
Total number of 4 wheelers used	- 154
Number of electrical four wheelers	- 04

BIODIVERSITY AUDIT

Carbon is the basis of life on mother Earth. It is incorporated into the plants through photosynthesis, consumed by animal species through the food, present in the form of carbon dioxide (CO₂) in the atmosphere, locked into the rocks as limestone and compressed into the different fossil fuels such as coal and oil. As CO₂ level in the atmosphere continue to increase, most climate designs or project that the oceans of the world and trees will keep soaking up more than half CO₂. The plants on land and in the sea, taken up carbon by over many years increased the percentage discharged during decay, and this increased carbon became locked away as fossil fuels beneath the surface of the planet.

The starting of the 21st century brought growing concern about global warming, climate change, food security, poverty and population growth. In the 21st century more carbon has been released into the atmosphere than that has been absorbed. CO₂ is a principle component causing global warming. Atmospheric carbon dioxide levels have increased to 40 % from preindustrial levels to more than 390 parts per million CO₂. On this background it is a need of time to cover the research areas interrelated with climate change.

The “Carbon Sequestration and Green cover inventory” is a current status of tree cover and vegetation carbon storage assessment of area under Sri Venkateswara University campus. In an era of climate change and global warming carbon emission, carbon footprints, carbon sequestration, adaptations, mitigation are the keywords in academia. Carbon sequestration is a process of converting atmospheric carbon i.e. CO₂ into other sinks of carbon such as vegetation, soil, ocean etc. in various forms to mitigate global warming audit is one of the important clauses of Kyoto Protocol.

While transforming ourselves from regional university to global university it is a responsibility of such universities to face the global future challenges and try to find out possible solutions for them. It is a social and environmental responsibility of Government Institutes, Universities, National and International Organizations to respond positively for various global issues at local level and should percolate the generated knowledge in to the society. Global warming and climate change are current environmental issues need to be addressed scientifically and efficiently. As Universities are provided with skillful human resource supported by analytical infrastructure, it is our duty to bring such ideas in practice. While understanding the call of time the Department of Botany and Environmental Science, Sri Venkateswara University has decided to enumerate the green cover of Sri Venkateswara University campus.

LIST OF PLANT SPECIES ON SRI VENKATESWARA UNIVERSITY CAMPUS

S. NO	COMMON NAME	BOTANICAL NAME	TYPE/ USE
1	Custard Apple	<i>Annona squamosa</i> L. (Var.name:seethapalam)	Fruit yielding, Medicinal
2	False ashoka	<i>Polyalthia longifolia</i> (Sonner) Thw. (Naramamidi) -60	Wind breaker
3	False ashoka	<i>Polyalthia longifolia</i> Hook. & Thom. Var. pendula (Ontikomma naraamamidi) -51	Wind breaker
4	Snuff-Box Tree	<i>Oncoba spinosa</i> Forsk. (Line gulabi) - 01	Medicinal
5	Red silk-Cotton tree	<i>Bombax ceiba</i> L. (Buruga) -03	Fibre yielding
6	Buddha's coconut tree	<i>Sterculia alata</i> -01	
7	Bael	<i>Agle marmelos</i> (L.) Corr. (Maredu) - 01	Medicinal
8	Tree of heaven	<i>Ailanthus excelsa</i> Roxb. (Pedda vepa) -01	Matchstick industry
9	Neem tree	<i>Azadirachta indica</i> A. Juss. (Vepa) - 150	Medicinal
10	Indian mahogany	<i>Chukraia tabularis</i> A. Juss. (Konda vepa) -01	Medicinal
11	Indian rose wood	<i>Somyda febrifuga</i> (Roxb.) A. Juss. (Somi) -02	Medicinal, Wood yielding
12	Ceylon satinwood or East Indian satinwood	<i>Chloroxylon swietenia</i> DC. (Billudu) -08	Wood yielding
13	Ceylon Tea	<i>Cassine glauca</i> (Rottb.) Kuntz. (Neridi) -06	Medicinal
14	Indian jujube	<i>Ziziphus mauritiana</i> Lam. (Regi chettu) -18	Fruit yielding
15	Kath Ber	<i>Ziziphus xylopyrus</i> (Retz.,) Willd. (Gotti) -03	Medicinal

16	Notched Leaf Soapnut	<i>Sapindus emarginatus</i> Vahl. (Kunkudu) -08	Medicinal
17	Mango	<i>Mangifera indica</i> L. (Mamidi) -04	Fruit yielding
18	Indian ash tree	<i>Lannea coromandelica</i> (Houtt.) Mann. (Gumpana) -60	Plywood making
19	Flame-of-the-forest	<i>Butea monosperma</i> (Lam.) Taub. (Modhuga) -02	Medicinal
20	Indian rosewood	<i>Dalbergia latifolia</i> Roxb. (Iridi) -02	Wood yielding
21	Mexican Lilac	<i>Gliricidia sepium</i> (Jacq.) Kunth ex Walp. (Seema kanuga) -10	Rat poison
22	Indian beech and Pongame oiltree.	<i>Pongamia pinnata</i> (L.) Pier. (Kanuga) -136	Medicinal , Biodiesel preparation
23	Malabar kino	<i>Pterocarpus marsupium</i> Roxb. (Yegi) -02	Medicinal
24	Red Sanders	<i>Pterocarpus santalinus</i> L.f. (Errachandhanam) -16	Medicinal, Wood yielding
25	Orchid Tree	<i>Bauhinia purpurea</i> L. (Deva kanchanam) -02	Medicinal
26	Bidi leaf tree	<i>Bauhinia recemosa</i> Lam. (Ari chettu) -01	Medicinal
27	Red cassia, Ceylon senna	<i>Cassia roxburghii</i> DC. (Rela) -54	Medicinal
28	Siamese cassia	<i>Cassia siamea</i> L. (Seema thangedu) - 33	Medicinal
29	Royal Poinciana	<i>Delonix regia</i> (Boj. Ex Hook.) Rafin. (Thurai) -12	Ornamental
30	Yellow Flame/ Copper pod	<i>Peltophorum pterocarpum</i> (DC.) Baker ex Heyne. (Konda chintha) - 272	Ornamental
31	Tamarind	<i>Tamarindus indica</i> L. (Chintha) -59	Cuisines , Medicinal
32	Auri,	<i>Acacia auriculiformis</i> A. Cunn. ex Benth. (Australia thumma) -02	Ornamental

33	White-bark acacia	<i>Acacia leucophloea</i> (Roxb.) Willd. (Thella thumma) -02	Wood
34	Lebbeck /Woman's tongue tree	<i>Albizia lebbeck</i> (L.) Benth. (Bagichettu) -16	Forage , Wood
35	Jumbay, white leadtree,	<i>Leucaena latisiliqua</i> (L.) Gillis. (Subabulu) -07	Multipurpose tree
36	Badminton ball tree	<i>Parkia biglandulosa</i> Wt.& Arn. (Banthi thumma) -02	Ornamental
37	Manila Tamarind	<i>Pithecellobium dulce</i> (Roxb.) Benth. (Cheema chintha) -01	Food, Traditional medicine
38	Chilean mesquite	<i>Prosopis chilensis</i> (Molina) Stuntz. (Sarkar thumma) -01	Shade tree
39	Rain tree	<i>Samanea saman</i> (Jacq.) Merr. J. Wash. (Nidraganneru) -19	Shade tree
40	Arjuna/ Arjun tree	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wt. & Arn. (Tellamaddhi) -16	Silk production (Tassar)
41	Baheda	<i>Terminalia bellirica</i> (Gaertn.) Roxb. (Thandra) -02	Medicinal
42	Indian almond	<i>Terminalia catappa</i> L. (Badam chettu) -02	Food/ wood/ Ornamental
43	Southern blue gum	<i>Eucalyptus globulus</i> Labill. (Neelagiri thylam) -52	Essential oil/ Wood
44	Common guava	<i>Psidium guajava</i> L. (Jama chettu) -01	Food, Traditional medicine
45	Jamun	<i>Syzygium cumini</i> (L.) Skeels. (Neredu chettu) -60	Food medicine
46	Gummy Gardenia	<i>Gardenia gummifera</i> L.f. (Bikki) -02	Medicinal
47	West Indian jasmine	<i>Ixora acuminata</i> Roxb. (Tella ramabanam) -02	Ornamental
48	Aal or Indian mulberry	<i>Morinda pubescens</i> J.E. Smith var. pubecens Verdc. (Maddi) -56	Dye yielding
49	Torch tree	<i>Ixora pavetta</i> Andr. (Korivi chettu) -	Ornamental

		03	
50	Madhūka,	<i>Madhuca longifolia</i> (K oen.) Macbr. Var. <i>latifolia</i> (Roxb.) A. Cheval. (Ippa) -08	Silk production (tassar) and medicinal
51	Sapodilla	<i>Manilkara zapota</i> (L.) P. Royen. (Sapota) -01	Fruit yielding
52	Spanish cherry	<i>Mimusops elengi</i> L. (Pogada) -05	Medicinal
53	Caterpillar tree	<i>Plumeria alba</i> L. (Tella devaganneru) - 08	Ornamental, Medicinal
54	Pinwheel flower,	<i>Tabernaemontana divaricata</i> L. (Nandivardhanam) -02	Ornamental, Medicinal
55	Small Pinwheel flower	<i>Ervatamia divaricata</i> (L.) Burkill (Sanna nandivardhanamu) -02	Ornamental, Medicinal
56	Sweet Indrajao	<i>Wrightia tinctoria</i> (Roxb.) R. Br. (Reppala) -28	Dye yielding, Medicinal
57	Yellow oleander	<i>Cascabela thevetia</i> (L.) Lipp. (Patcha ganneru) -04	Poisonous
58	Indian Cherry	<i>Cordia dichotoma</i> Forst. (Iriki) -01	Traditional medicine
59	Geiger tree	<i>Cordia sebestena</i> L. -01	Ornamental
60	Wavy trumpet flower	<i>Dolichandrone atrovirens</i> (Roth) Spr. (Oddi) -02	Ornamental
61	Jacaranda, blue jacaranda	<i>Jacaranda acutifolia</i> Humb . & Bonpl. (Swarna sundari) -01	Ornamental, Wood
62	Sausage tree	<i>Kigelia africana</i> (Lam.) Benth. In Hook. (Enugu thondamu) -06	Poisonous
63	Tree jasmine or Indian cork tree	<i>Millingtonia hortensis</i> L.f. (Manu malli) -05	Ornamental
64	African tulip tree	<i>Spathodea companulata</i> P.Beauv. (Yerra neeru budda) -01	Ornamental
65	Silver Trumpet Tree	<i>Tebebuia argentea</i> (Bur. & K. Schum.) Britt. -03	Ornamental
66	Rosy trumpet tree	<i>Tebebuia rosea</i> (Bertol.) DC. -05	Ornamental
67	Yellow trumpetbush	<i>Tecoma stans</i> (L.) Kunth. (Pasupu)	Ornamental

		ganneru) -01	
68	Desert teak	<i>Tecomella undulata</i> (Sm.) Seem. -02	Wood yielding
69	Teak	<i>Tectona grandis</i> L.f. (Teku) -09	Wood yielding
70	Helicopter tree	<i>Gyrocarpus asiaticus</i> Willd. (Kummara poliki) -02	Ornamental
71	Great bougainvillea,	<i>Bougainvillea spectabilis</i> Willd. -03	Ornamental, Tribal medicine
72	Indian sandalwood	<i>Santalum albam</i> L. (Srigandhamu) - 02	Wood, Medicine
73	Indian gooseberry	<i>Phyllanthus emblica</i> L. (Nellikaya) - 07	Culinary, Traditional medicine
74	Indian elm	<i>Holoptelea integrifolia</i> (Roxb.) Planch. -09	Cheap wood, Medicinal
75	Banyan	<i>Ficus benghalensis</i> L. -44	Cultural significance
76	Sacred Fig	<i>Ficus religiosa</i> L. (Ravi chettu) -17	Traditional medicine
77	The common fig	<i>Ficus carica</i> L. (Atthi chettu) -01	Food, Folk medicine
78	Australian pine tree or whistling pine tree	<i>Casurina littorea</i> L. (Sarugudu) -02	Wood, Ornamental
79	Traveler's palm	<i>Ravenala madagascarensis</i> Sonner. (Panka arati) -01	Ornamental
80	Indian shot	<i>Canna indica</i> L. (Metta thamara) -02	Ornamental
81	Thorny bamboo	<i>Bambusa arundinacea</i> (Retz.) Roxb. (Veduru) -02	Wood for thatching
82	Toddy Palm	<i>Borassus flabellifer</i> L. (Tati chettu) - 01	Edible, Palm wine
83	Cuban royal palm	<i>Roystonea regia</i> (Kunth) O.F. Cook. - 20	Ornamental
84	Yellow Cane Palm	<i>Dypsis lutescens</i> (H.W endl.) Beentje & J. Dransf. -14	Ornamental



Custard Apple



Indian mahogany



Indian ash tree



Flame-of-the-forest



Red cassia, Ceylon senna



Arjuna/ Arjun tree



Sweet Indrajao



Rosy trumpet tree



Silver Trumpet Tree



Geiger tree



Indian elm



Cycas beddomei



Couroupita guianensis (Cannonball tree)



Indian sandalwood

Plant Species On Sri Venkateswara University Campus

In ecology, the mass of living biological organism in a given area or ecosystem at a given time is called as biomass. Biomass can refer to species biomass and community biomass. The species biomass is the mass of one or more species. The community biomass, which is the mass of all species in the community. It includes microorganisms, plants or animals. The mass can be defined as the average mass per unit area, or as the total mass in the community.

To estimate the biomass of the each individual tree species non- destructive method was used. To calculate the circumference Diameter at Breast Height (DBH) can be determined by measuring tree Girth at Breast Height (GBH), approximately at 1.3 meter from the ground. The Girth at Breast Height of trees having diameter which greater than 10 centimeters were measured directly by measuring tape.

To maintain green cover and carbon sequestration potential of the University following precautionary measures were taken.

Plantation of endemic species like *Pterocarpus santalinus*, *Cycas beddomei*, *Boswellia ovalifoliata*, *Syzygium cumini* etc were planted to conserve native biodiversity. The plantation of tree species like *Acacia nilotica subsp. indica*, *Albizia lebbbeck*, *Azadirachta indica*, *Citrus aurantium* works as green belt which can maintain the ecological balance in the environment as well as act as sink for the

harmful gases and improve air quality. Plantation activity is taken every year to increase the green cover on the University campus. Avoided the plantation of exotic species like *Casuarina*, which is fast growing species with less ecological values. Sri Venkateswara University received : ISO 14001: 2015 certificate for Implementation of Greenary and Environmental Promotion Activities



ISO 14001: 2015 IMPLEMENTATION OF GREENERY AND ENVIRONMENTAL PROMOTION ACTIVITIES

India has large geographical size and variety of climate and habitats. Wild animals constitute great national resources. Preservation and protection of wildlife is important from the ecological point of view. As per the UNESCO's Man and Biosphere program, the government of India has established the Seshachalam Biosphere Reserve on 20th September, 2010. The reserve is the first biosphere reserve in Andhra Pradesh and the 17th in India. By size, it is the 9th largest in India.

Sri Venkateswara University is located at foot hills of Tirumala of Seshachalam hill range a Biosphere reserve spread over in area of 483 acres with lush green campus possessing more than ten thousand different kinds of plants. At North side of the campus are seven peaks of, Eastern Ghats namely Seshadri, Neeladri, Garudadri, Anjanadri, Vrushabadri, Narayanadri and Venkatadri. Being covered with hilly region and green luxurious coverage the Sri Venkateswara University harbours different species of birds, insects, reptiles, deers and rabbits etc. In addition to above plant species a diversified fauna has been observed and documented.



***GREATER COUCAL** Centropus sinensis*



***ASIAN KOEL** Eudynamys scolopaceus*



COMMON HAWK-CUCKOO *Hierococcyx varius*



WHITE-THROATED KINGFISHER *Halcyon smyrnensis*



ROSE-RINGED PARAKEET *Psittacula krameri*



COMMON TAILORBIRD *Orthotomus sutorius*



COMMON TAILORBIRD *Orthotomus sutorius*



BLACK-HEADED CUCKOOSHRIKE *Lalage melanoptera*



INDIAN PEA FOWL *Pavo cristatus*



INDIAN EAGLE OWL *Bubo bengalensis*



GUNIEA FOWL *Numida meleagris*



JUNGLE FOWL *Gallus sonneratii*



ROOSTER *Gallus gallus domesticus*



RED-BELLIED WOODPECKER *Melanerpes carolinus*

Sri Venkateswara University is located at foot hills of Tirumala of Seshachalam hill range a Biosphere reserve spread over in area of 483 acres with lush green campus possessing several wild animals in and around the Campus of the University.



SPOTTED DEER



INDIAN BOAR



RED SLENDER LORIS



MONKEY



RABBIT



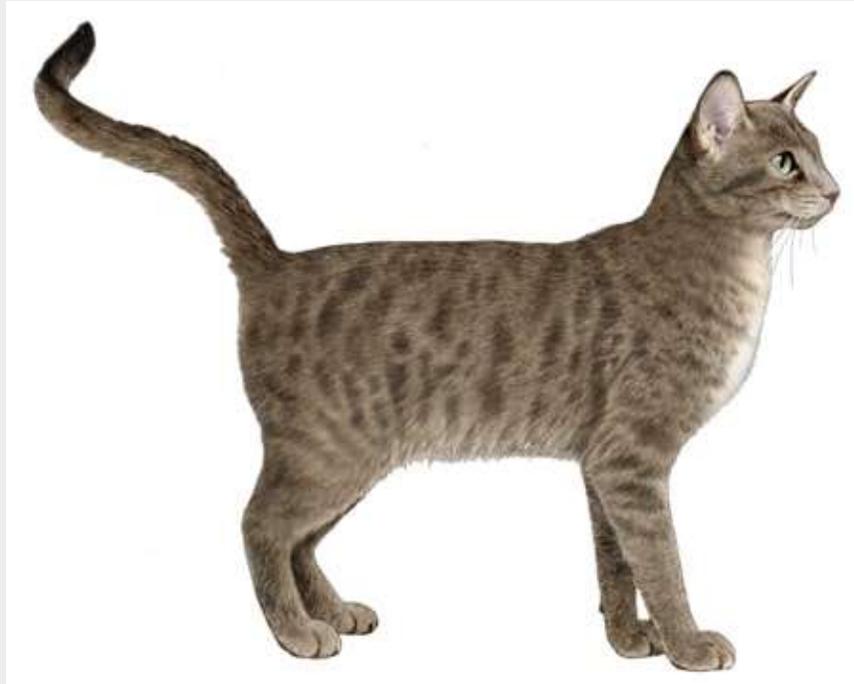
COW



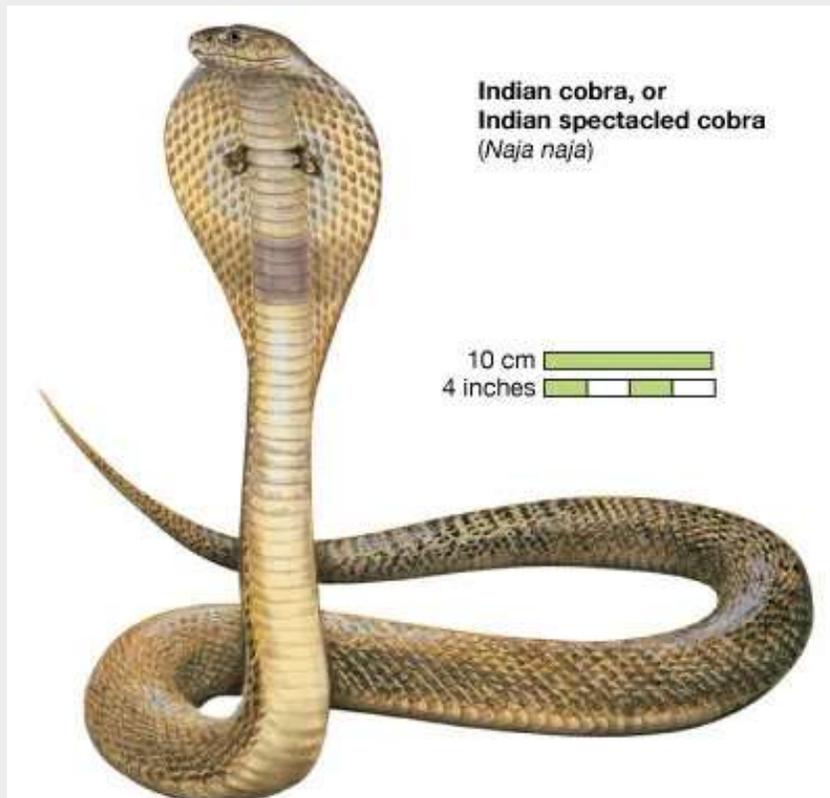
SQUIRREL



INDIAN WILD DOG



INDIAN CAT



INDIAN COBRA



GREEN SNAKE



RED SAND BOA SNAKE



PHYTON



GOLDEN GECKO



MARBLED BALLON FROG



SNAIL



SCORPION



MILLIPEDE



CENTIPEDE



EARTHWORMS



BEETLE

Different types of Invertebrata and Cordata are found in and around the University

Fire Safety

Fire safety measures well adopted in the University and each floor has an open stair-case without any barriers for fire safety measures. Additional fire safety measures like fire alarms, smoke detectors and fire emergency kit are available in the necessary areas in the Premises.

The building wise summary of fire safety is as follows:

S.No.	Building Name	Floor	Number of Fire Extinguishers
1.	Administrative Building	Ground floor	09
2.	Administrative Building	First floor	11
3.	Administrative Building	Second floor	02
4.	Natural Sciences Block: Dr. D.J.Reddy Bhavan	Ground floor	03
5.	Natural Sciences Block: Dr. D.J.Reddy Bhavan	First floor	04
6.	Natural Sciences Block: Dr. D.J.Reddy Bhavan	Second floor	02
7.	Natural Sciences Block: Dr. D.J.Reddy Bhavan	Third floor	01
8.	Vaman Rao Bhavan	Ground floor	03
9.	Vaman Rao Bhavan	First floor	03
10.	Physical Sciences Block	All floors	14
11.	Virology Building	First floor	01
12.	Virology Building	Second floor	01
13.	Microbiology Building	Ground floor	01
14.	Engineering Department	All buildings	30
15.	Praksham Bhavan	All floors	19
16.	Pharmaceutical Sciences Building	All floors	03

17.	CM&CS Building	All floors	09
18.	Library	All floors	06
19.	Health Centre	All floors	07
20.	Computer Centre	All floors	04
21.	Srinivasa Auditorium	Ground floor	06
22.	All Messes	Ground floor	05
23.	Physical Education Block	Ground floor	02
24.	Prof. Choppla Ratnam Bhavan	Ground floor	02
25.	Old MBA Building	All floors	06
26.	Commerce Building	Ground floor	01
27.	DST Purse Centre Building	All floors	04
28.	IASE	All floors	02
29.	PG Department of Law	Ground floor	01
30.	Biotechnology Building	All floors	03
31.	ORI	All floors	02
32.	DDE	All floors	03
33.	Guest House	All buildings	04
34.	V C Bungalow	All floors	03
35.	Annamaya Bhavan	All floors	02
36.	Geography Block	All floors	01
37.	Hostels	All	12
38.	Post Office	Ground floor	01
39.	Bio Chemistry	All floors	03
40.	SEAPS	All floors	01
41.	Annapoorna Canteen	Ground floor	01
42.	State Bank of India+ DOA	All floors	03
43.	Union Bank of India + MHRD	All floors	03
44.	SVU Campus School	All floors	04
45.	SVU Stadium	Ground floor	04

The University abides to the Rules and Regulations of the Fire Department and equal number of fire extinguishers are provided in all the premises of the University. Red colour buckets with sand are also present in the University.

Study of Site features:

- Route maps to facilitate easy transport
- Usage of bicycles and motor vehicles to reduce pollution
- Water pits to harvest rain water
- Pleasant environment with Ponds and variety of trees
- Acclimatization of land to grow different flowering plants
- Clearing of unwanted plants to control mosquitoes and insects
- Solar panels installation to reduce electricity
- Restricted automobiles entry into the campus at the main gates
- Xerox shop and canteen facilities to in order to allow students to take print outs at the hostels.

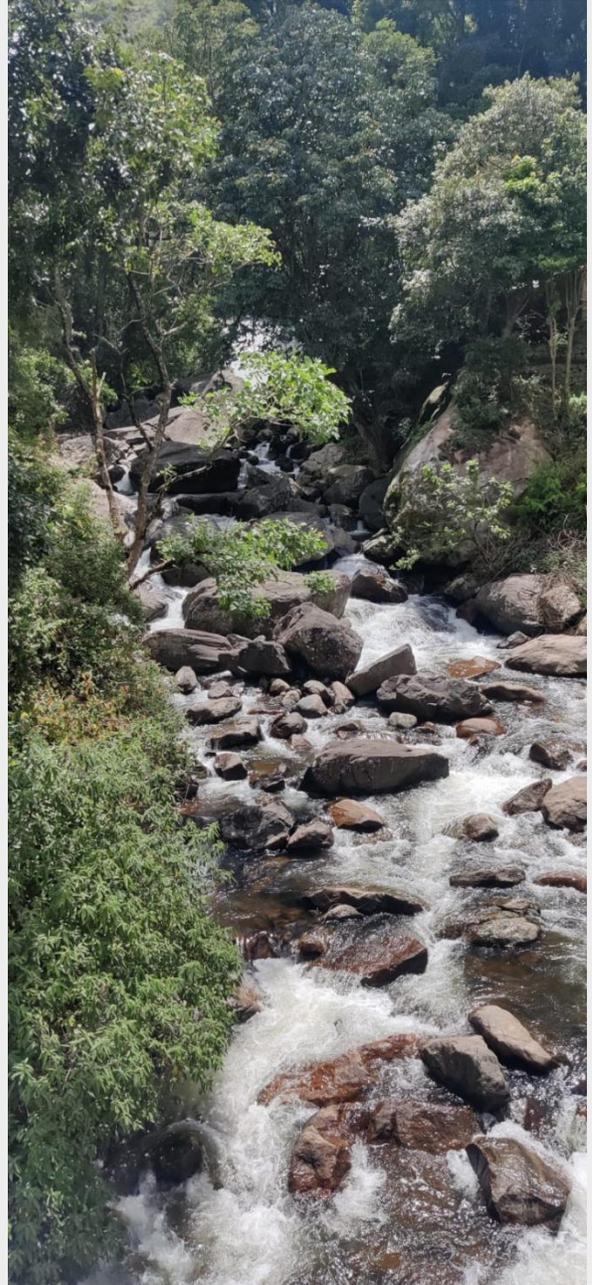
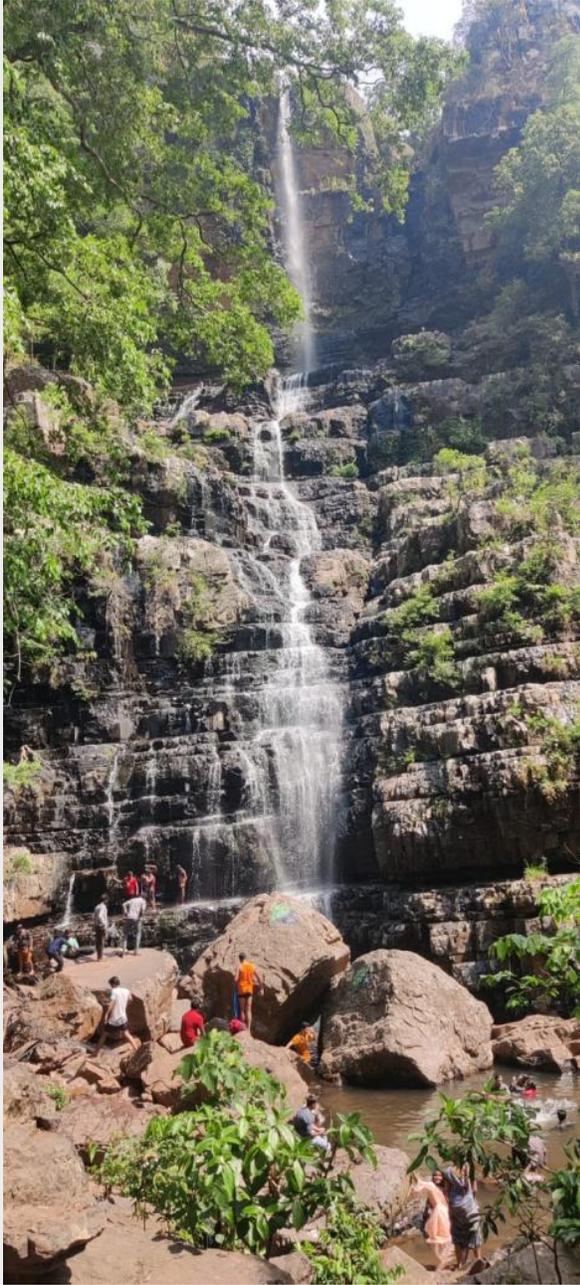
FIELD TRIPS VISIT IN DIFFERENT AREAS



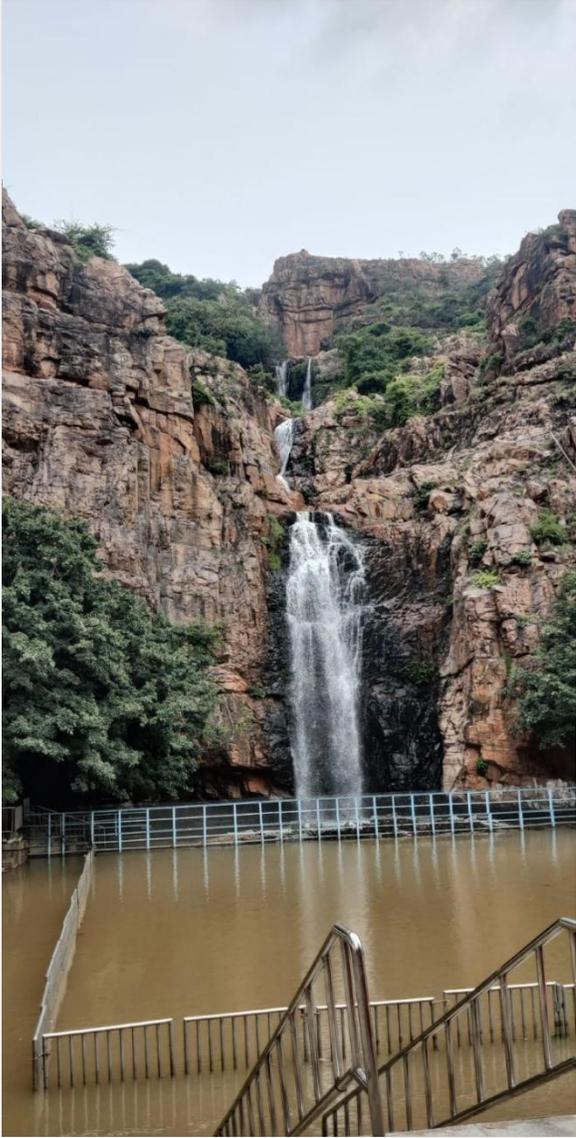


FIELD VISIT





FIELD VISITS



Field trip visits



FIELD TRIPS AT VARIOUS PLACES



SPECIES IDENTIFICATION



(i)



(ii)



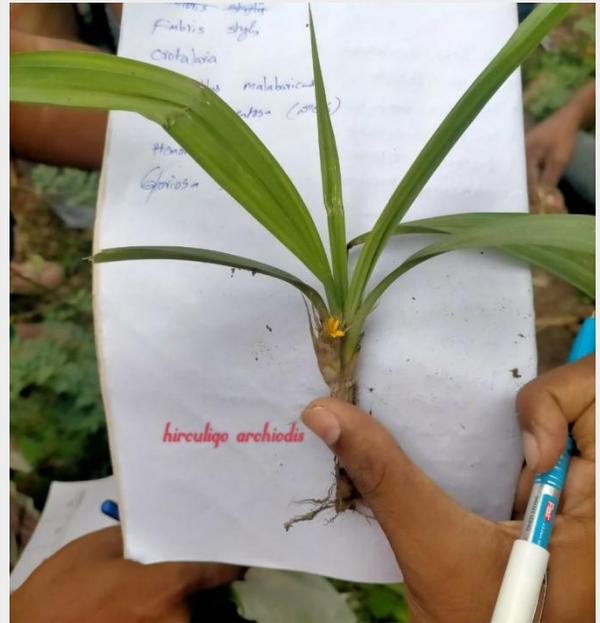
(ii)



(iii)



(iv)



(v)



(vi)



(vii)



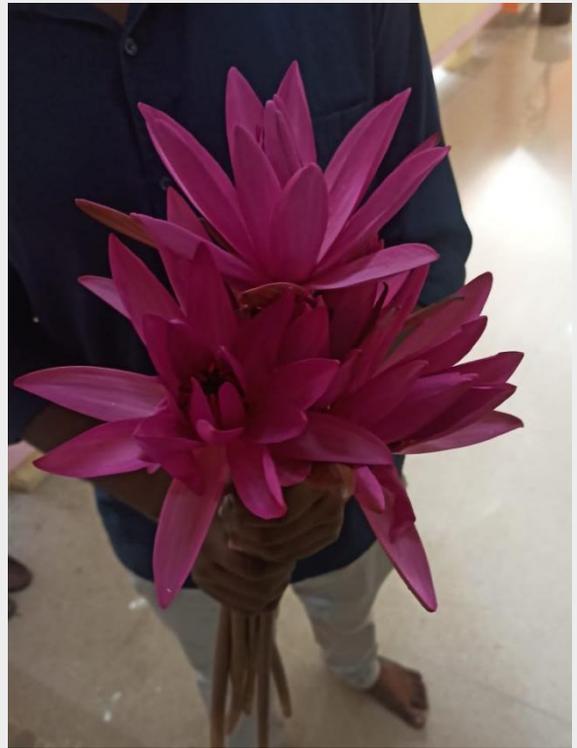
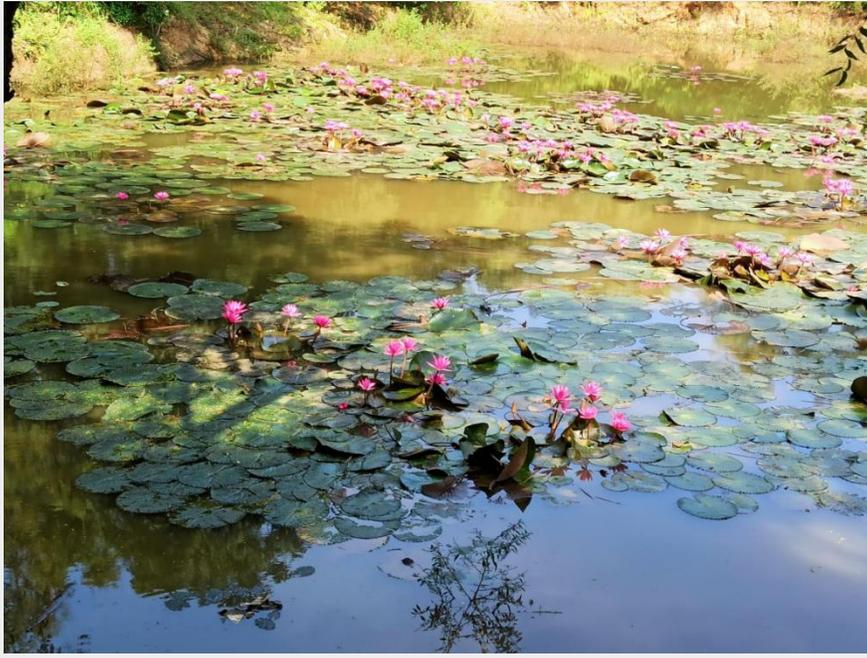
(x)



(xi)

(i) To (xi) SPECIES COLLECTION AND IDENTIFICATION

5. SOME OF THE PRACTICES OF OUR UNIVERSITY



PUG MARKS COLLECTION OF DIFFERENT ANIMALS



LEOPARD PUG MARK



PUG MARK OF DEER

CREATIVE GALLERY



7. EXECUTIVE SUMMARY

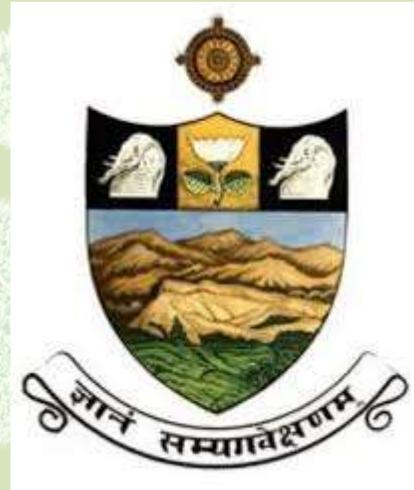
A Green Campus is a place where environmental friendly practices and education combine to promote sustainability in the campus which ultimately offers an institution to take the lead in redefining its environmental culture and developing new paradigms by creating sustainable solutions to environmental, social and economic needs of the mankind.

Audit criterion is environmental cognizance, waste minimization and management biodiversity, water conservation, energy conservation and environmental legislative compliance by the campus. A questionnaire is used during audit. This audit report contains observations and recommendations for the improvement of environmental consciousness on the Campus of the University.



CARBON NEUTRALITY
SRI VENKATESWARA UNIVERSITY:: TIRUPATI





SRI VENKATESWARA UNIVERSITY, TIRUPATI

CARBON NEUTRALITY

NOT ZERO -NET ZERO



CARBON NEUTRALITY

INTRODUCTION

Global warming is one of the most pressing concerns facing humanity today. Anthropogenic activities have been shown to result in negative impacts on the environment through increasing Green House Gas (GHG) emissions. Climate change and its effects are a fact of life that people are currently confronted with. There have been talks about inter generational equity and developing a sustainable way of life as an approach to combating this worldwide threat. As sustainability can be a difficult concept to grasp, there are many different perspectives on what it means to be sustainable. In 2015, 196 nations signed the Paris Climate Accord with the objective of limiting global warming to far below 2 °C above Pre-industrial levels and pursuing extra measures to reduce it to 1.5 °C above Pre-industrial levels. To keep global warming below 1.5°C, immediate action is needed to cut global GHG emissions by 44% below 2010 levels by 2030, with net zero emissions by 2050.



Carbon Neutrality

Carbon neutrality is defined in a variety of ways; thus, it is critical to have a common consensus in order to avoid any misunderstanding. The Publicly Available Specification by the British Standards Institution (BSI PAS 2060) defines carbon neutrality as the absence of net GHG emissions during a certain time period, while the Carbon Neutral Cities Alliance (CNCA) describes it as a goal of cutting GHG emissions by 80–100% by 2050 or sooner when compared to the baseline year of 1990. The two documents, BSI PAS 2060 and CNCA, are similar in their conclusions in the sense that a city's net GHG emissions should be zero at some point in the future during a predetermined period.

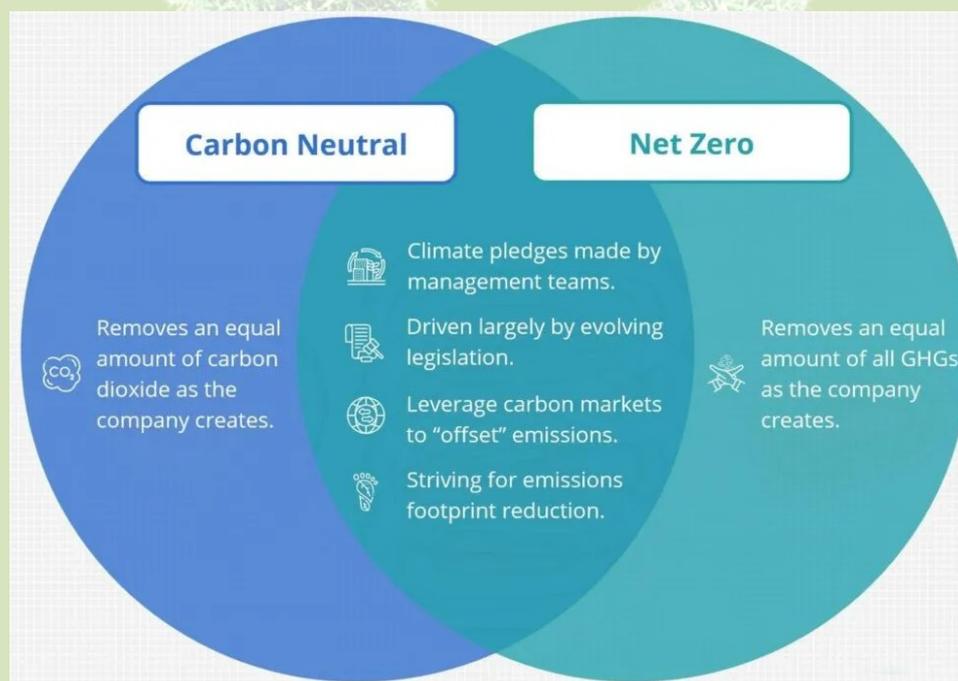
Carbon neutrality means having a balance between emitting carbon and absorbing carbon from the atmosphere in carbon sinks. Removing carbon oxide from the atmosphere and then storing it is known as carbon sequestration.

In order to achieve net zero emissions, all worldwide Green House Gas (GHG) emissions will have to be counterbalanced by carbon sequestration.

Carbon sink is any system that absorbs more carbon than it emits. The main natural carbon sinks are soil, forests and oceans. According to estimates, natural sinks remove between 9.5 and 11 Gt of Carbon dioxide per year. Annual global Carbondioxide emissions reached 36.0 Gt in 2020.

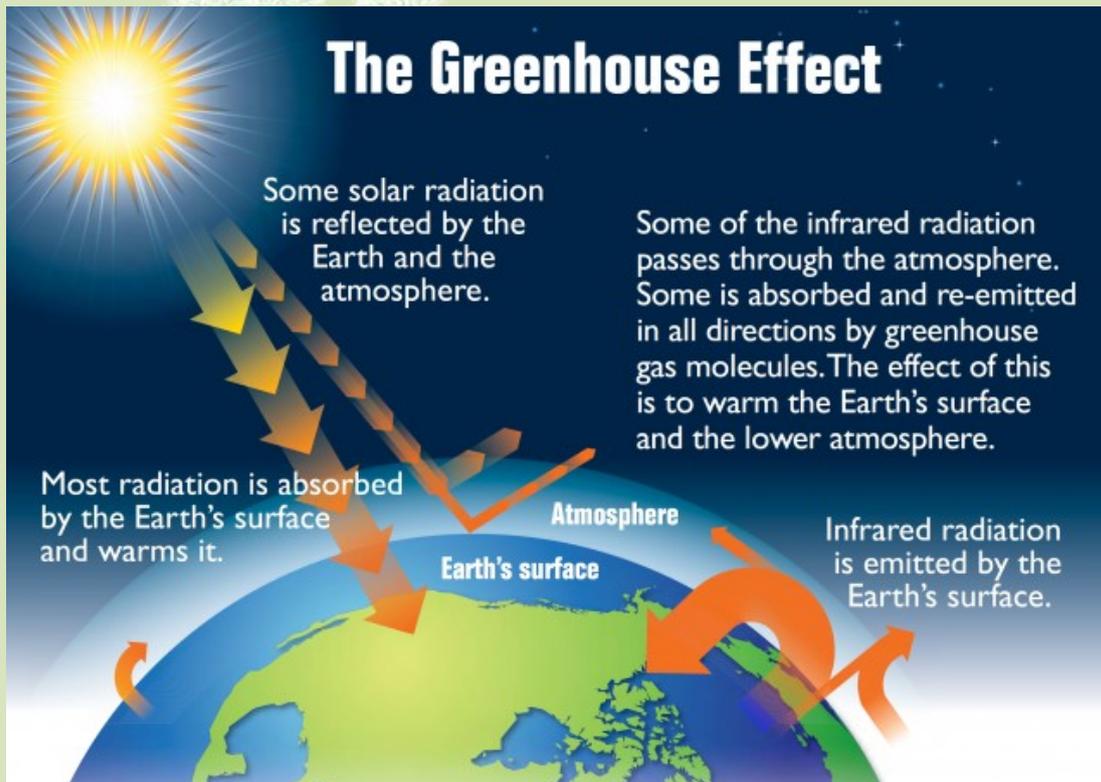
To date, no artificial carbon sinks are able to remove carbon from the atmosphere on the necessary scale to fight global warming.

The carbon stored in natural sinks such as forests is released into the atmosphere through forest fires, changes in land use or logging. This is why it is essential to reduce carbon emissions in order to reach climate neutrality.



Green House Gas (GHGs)

Emissions GHG are gases that absorb and radiate heat from infrared radiation. Almost all of the rise in GHG in the atmosphere during the last 150 years can be attributed to human activities. This is the primary activity contributing to global climate change. Sri Venkateswara University is committed to assisting in the construction of a zero-carbon society. The Race to Zero criteria includes achieving net zero emissions by 2050 or sooner, describing the steps that will be followed to achieve net zero, taking action towards net zero while documenting where carbon reductions are being made and making a commitment to report progress on an annual basis.



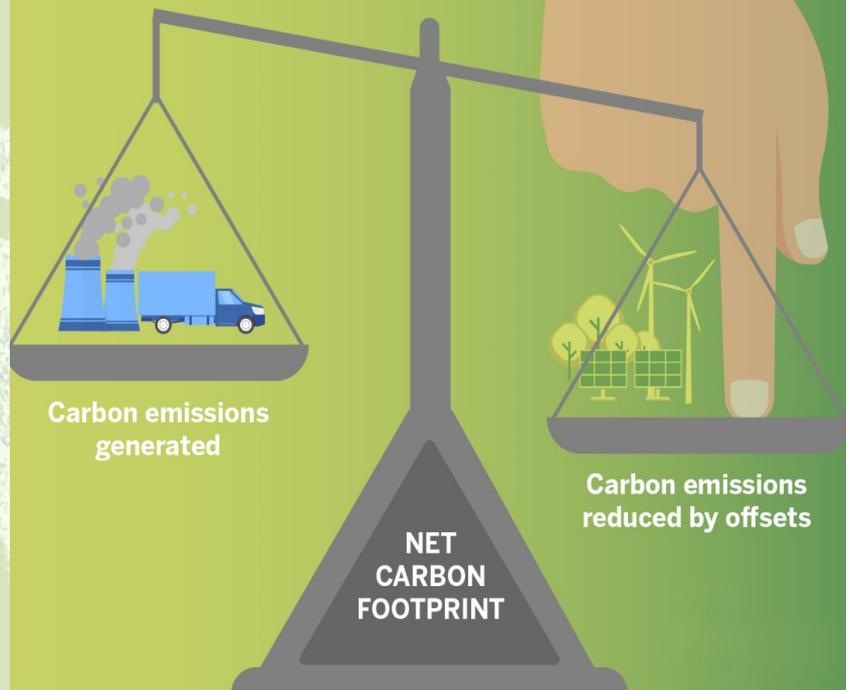
Carbon Offsetting

Another way to reduce emissions and to pursue carbon neutrality is to offset emissions made in one sector by reducing them somewhere else. This can be done through investment in renewable energy, energy efficiency or other clean, low-carbon technologies. The EU's Emissions Trading System (ETS) is an example of a carbon offsetting system.

Another example of an initiative to reduce emissions is the carbon border adjustment mechanism, which would apply carbon prices on imported goods from less climate ambitious countries. This should help discourage companies moving production from the EU to somewhere with less stringent greenhouse gas emissions rules. The Commission should propose this carbon levy in 2021.

How Does Carbon Offsetting Work?

Purchasing carbon offsets helps minimize your environmental impact and compensate for the CO₂ emissions you produce.



Carbon Footprint

A measure of the total amount of greenhouse gases released into the atmosphere as a result of an individual's, organization's, or nation's actions. It's usually measured in tonnes (or Kgs) of CO₂e (carbon dioxide equivalent). It measures the impact of activities on the environment, in particular climate change. It relates to the amount of green house gases produced through burning fossil fuels for electricity, heating and transportation etc. A Carbon Footprint Disclosure of any educational institution is very important to understand such that its key emission sources can be identified and necessary mitigation measures can be adopted for carbon reduction.

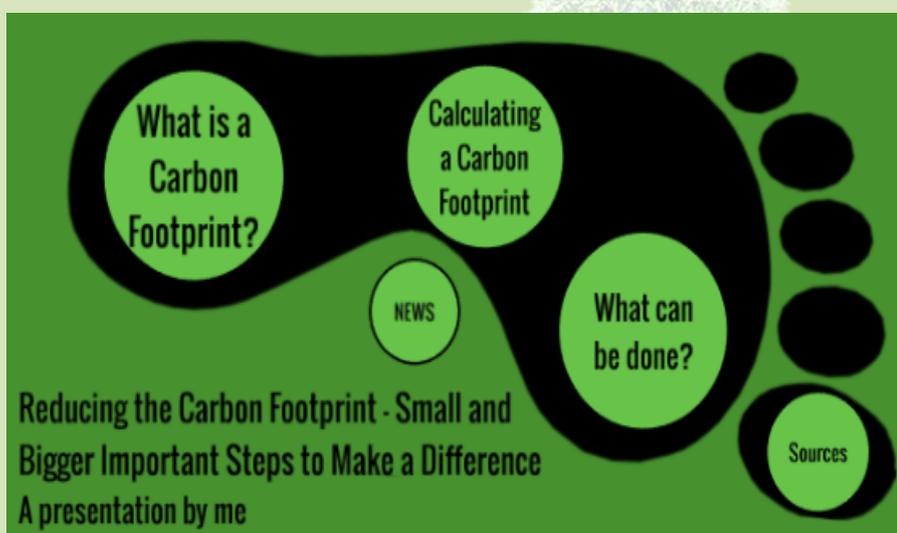
Carbon Footprint, as an indicator of climate performance, helps identify major GHG emission sources and potential areas for improvement. It has been introduced as a tool to guide the relevant emission cuts and verification that will facilitate the understanding of the risk of global warming at the very first stage. India must set an example by balancing energy use and climate goals.

India must set an example by balancing energy use and climate goals

- **Green House Gasses (GHG).** Any type of gas in the atmosphere that blocks heat from escaping. In relation to your carbon footprint and climate change, the main ones to mention are carbon dioxide, nitrous oxide, and methane.
- **The Green House Effect.** The process through which GHGs in the Earth's atmosphere trap heat from the sun. Although this is a natural phenomenon that keeps the planet habitable, our GHG emissions are causing the Earth to warm up at an unnatural rate.
- **Climate Change.** A pattern of long-term change in the temperature and weather patterns either globally or regionally. Although these alterations occur naturally, man-made climate change is rapidly accelerating the pace of them.
- **Global Warming.** The rapid increase in average surface temperatures on Earth caused by the accumulation of greenhouse gases in the atmosphere. It is just one element of climate change.
- **Fossil Fuels.** Natural resources that produce carbon dioxide and other greenhouse gasses when burnt. Coal, oil and natural gas are all examples.

As India started to make an advancement and change in society as an Education Institution or University, University started Carbon Neutrality Not Zero- Net Zero Policy in and around the Campus. In this report negligible emissions from garden waste, mobile source and fugitive emissions. The awareness will invite career opportunities for the students in the students in the field of environment and ecology. Besides the computation of Carbon Footprint of Sri Venkateswara University, the study has raised a reasonable awareness amongst faculty and students about carbon footprint and impacts of global warming which was lacking initially.

Few of the several benefits associated with this study is implementing directional mitigation measures of the University, thereby, saving resources. Setting of policy and objectives will help the University to achieve both environmental and financial sustainability.



CARBON FOOTPRINT

A carbon footprint is defined as the total amount of greenhouse gases produced directly and indirectly to support human activities, usually expressed in equivalent tons of carbon dioxide (CO₂).

Your carbon footprint is the sum of all emissions of CO₂ (carbon dioxide), which were induced by your activities in a given time frame. Usually a carbon footprint is calculated for the time period of a year.

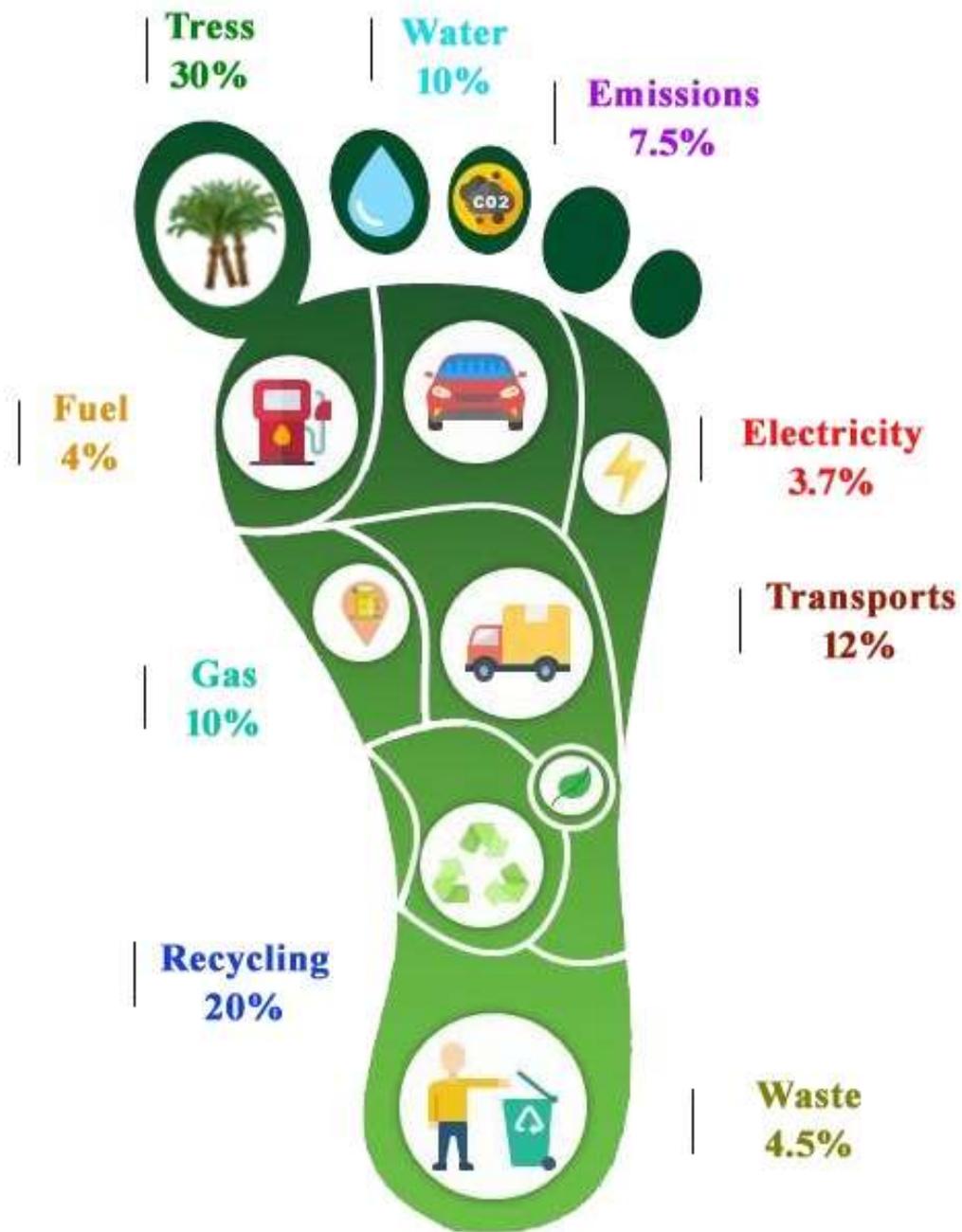
The best way to calculate the carbon dioxide emissions based on the fuel consumption.

Measures to reduce Greenhouse Gases Emissions from Agricultural Sector

- 1) Mitigation practices are effective in reducing carbon footprinting from other agricultural activities
- 2) Effective use of fossil fuels and other sources of non-renewable energy in the agricultural system.
- 3) Diversified cropping system
- 4) By straw return plantation, enhancing soil carbon sequestration
- 5) By adopting a Crop Rotation System
- 6) Limiting Deforestation



CARBON FOOTPRINT



S. No	Sources In S.V University
1.	Fans
2.	LEDS
3.	Electricity / Solar Power Consumption
4.	ACs
5.	Mess
6.	Jungle Report

1. FANS

S. NO	BUILDING NAME	FAN NOS	FAN TYPES
1.	ADMINISTRATIVE BUILDING	140	High Speed Fan
2.	PRAKASAM BHAVAN ARTS BLOCK	150	High Speed Fan
3.	DDE BUILDING	50	High Speed Fan
4.	JANARDHAN BHAVAN	25	High Speed Fan
5.	OLD MBA BUILDING	45	High Speed Fan
6.	PRESS BUILDING	10	High Speed Fan
7.	PHYSICAL SCIENCES BLOCK	120	High Speed Fan
8.	Dr. D.J. REDDY BHAVAN NATURAL SCIENCES BLOCK	135	High Speed Fan
9.	GEOGRAPHY SCIENCES BLOCK	30	High Speed Fan
10.	VAMANARAO BHAVAN	45	High Speed Fan
11.	CIVIL ENGINEERING BUILDING	30	High Speed Fan
12.	ECE BUILDING	38	High Speed Fan
13.	CHEMICAL ENGINEERING BUILDING	42	High Speed Fan
14.	MECHANICAL ENGINEERING BUILDING	37	High Speed Fan
15.	EEE & CSE BUILDING	44	High Speed Fan
16.	SVU LIBRARY	28	High Speed Fan
17.	HEALTH CENTRE	35	High Speed Fan
18.	PHYSICAL EDUCATION	21	High Speed Fan
19.	LAW & LIBRARY SCIENCE	18	High Speed Fan
20.	ORIENTAL RESEARCH INSTITUTE BUILDING	27	High Speed Fan

S. NO	BUILDING NAME	FAN NOS	FAN TYPES
21.	POPULATION STUDIES & BIO-TECHNOLOGY– (Lecture theatre Complex)	35	High Speed Fan
22.	BIO-CHEMISTRY	24	High Speed Fan
23.	MICROBIOLOGY	10	High Speed Fan
24.	DST PURSE PROGRAM	12	High Speed Fan
25.	VIROLOGY BUILDING	18	High Speed Fan
26.	PHARMACY BUILDING	22	High Speed Fan
27.	ANDHRA BANK SCHOOL OF MANAGEMENT	38	High Speed Fan
28.	COMPUTER SCIENCE	16	High Speed Fan
29.	SEAPS (AUDITORIUM OPP)	42	High Speed Fan
30.	SVU COMPUTER CENTRE	18	High Speed Fan
31.	USIC BUILDING	12	High Speed Fan
32.	SVU CAMPUS SCHOOL	40	High Speed Fan
33.	ANNAMAYYA BHAVAN	10	High Speed Fan
34.	PRAKASAM RECREATION CENTRE	10	High Speed Fan
35.	I.A.S.E BUILDING	36	High Speed Fan
36.	Prof. CHOPPALA RATHNAM BHAVAN	24	High Speed Fan
37.	HOSTELS		
	a) MEN'S HOSTEL (College of Arts & Sciences) 1 to 10 Blocks	1354	High Speed Fan
	b) MEN'S HOSTEL (College of Engineering) 1 to 4 Blocks	610	High Speed Fan
	c) WOMEN'S HOSTELS (Colleges of Arts, Sciences & Engineering) 1 to 8 Blocks	812	High Speed Fan

38.	QUARTERS		
	a. Red buildings 6 No's	28	High Speed Fan
	b. Twin Quarters 12 No's	42	High Speed Fan
	c. Readers Quarters 8 No's (III SET)	16	High Speed Fan
	d. Lectures Quarters (I SET)	4	High Speed Fan
	e. Lectures Quarters (III SET)	8	High Speed Fan
	f. Superintendents & Quarters	4	High Speed Fan
	g. Superintendents & N.T. Quarters	4	High Speed Fan
	h. Warden & Deputy Warden Quarters	4	High Speed Fan
	i. Deputy Warden Quarters 4 No's	16	High Speed Fan
	j. Servant Quarters for Engineering. Hostels	4	High Speed Fan
	k. Officers' Quarters	4	High Speed Fan
	l. UDC'S & LDC'S Quarters	4	High Speed Fan
	m. Lecturers Quarters (IV SET)	12	High Speed Fan
	n. Attenders & Peons Quarters	3	High Speed Fan
	o. Type I Quarters for Professors /Readers	4	High Speed Fan
	p. 4 Type I Quarters for Professors. Readers	12	High Speed Fan
	q. 4 Type I Quarters for Lectures	8	High Speed Fan
	r. Teachers Hostel – 8 Blocks – 2 Quarters Each	16	High Speed Fan
	s. Teachers Quarters – 3 Blocks	9	High Speed Fan
39.	HOSTEL OFFICES	4	High Speed Fan
40.	STATE BANK OF INDIA	12	High Speed Fan
41.	UNION BANK	10	High Speed Fan
42.	INDIAN POST OFFICE	12	High Speed Fan
43.	S V U AUDITORIUM	14	High Speed Fan
44.	GYMNASIUM	-	High Speed Fan

2. LEDs

S. NO	BUILDING NAME	FLOUROSENT LIGHTS	LED LIGHTS	SOLAR LIGHTS
1.	ADMINISTRATIVE BUILDING	20	350	150
2.	PRAKASAM BHAVAN ARTS BLOCK	10	210	70
3.	DDE BUILDING	2	70	10
4.	JANARDHAN BHAVAN	-	30	-
5.	OLD MBA BUILDING	10	120	20
6.	PRESS BUILDING	-	10	-
7.	PHYSICAL SCIENCES BLOCK	30	230	80
8.	Dr. D.J. REDDY BHAVAN NATURAL SCIENCES BLOCK	25	240	90
9.	GEOGRAPHY SCIENCES BLOCK	-	80	-
10.	VAMANARAO BHAVAN	10	110	30
11.	CIVIL ENGINEERING BUILDING	15	70	20
12.	ECE BUILDING	12	74	18
13.	CHEMICAL ENGINEERING BUILDING	15	68	16
14.	MECHANICAL ENGINEERING BUILDING	10	53	14
15.	EEE & CSE BUILDING	14	69	20
16.	SVU LIBRARY	-	70	-
17.	HEALTH CENTRE	-	85	-
18.	PHYSICAL EDUCATION	-	37	-
19.	LAW & LIBRARY SCIENCE	-	40	-
20.	ORIENTAL RESEARCH INSTITUTE BUILDING	-	62	-

21.	POPULATION STUDIES & BIO-TECHNOLOGY– (Lecture theatre Complex)	-	53	-
22.	BIO-CHEMISTRY	5	20	10
23.	MICROBIOLOGY	7	18	8
24.	DST PURSE PROGRAM	-	27	-
25.	VIROLOGY BUILDING	-	24	15
26.	PHARMACY BUILDING	-	32	-
27.	ANDHRA BANK SCHOOL OF MANAGEMENT	-	77	18
28.	COMPUTER SCIENCE	-	24	-
29.	SEAPS (AUDITORIUM OPP)	-	56	-
30.	SVU COMPUTER CENTRE	-	25	-
31.	USIC BUILDING	-	14	-
32.	SVU CAMPUS SCHOOL	50	32	-
33.	ANNAMAYYA BHAVAN	-	10	-
34.	PRAKASAM RECREATION CENTRE	20	-	-
35.	I.A.S.E BUILDING	-	28	-
36.	Prof. CHOPPALA RATHNAM BHAVAN	-	32	-
37.	HOSTELS			
	a. MEN'S HOSTEL (College of Arts & Sciences) 1 to 10 Blocks	-	1226	-
	b. MEN'S HOSTEL (College of Engineering) 1to 4 Blocks	-	604	-
	c. WOMEN'S HOSTELS (Colleges of Arts, Sciences & Engineering) 1to 8 Blocks		464	-

38	QUARTERS			
	A. Red buildings 6 No's	-	42	-
	B. Twin Quarters 12 No's	-	54	-
	C. Readers Quarters 8 No's (III SET)	-	38	-
	D. Lectures Quarters (I SET)	-	8	-
	E. Lectures Quarters (III SET)	-	16	-
	F. Superintendents & Quarters	-	8	-
	G. Superintendents & N.T. Quarters	-	8	-
	H. Warden & Deputy Warden Quarters	-	6	-
	I. Deputy Warden Quarters 4 No's	-	32	-
	J. Servant Quarters for Engineering. Hostels	-	8	-
	K. Officers' Quarters	-	8	-
	L. UDC'S & LDC'S Quarters	-	8	-
	M. Lecturers Quarters (IV SET)	-	16	-
	N. Attenders & Peons	-	8	-

	Quarters			
	O. II Type I Quarters for Professors /Readers	-	10	-
	P. 4 Type I Quarters for Professors. Readers	-	22	-
	Q. 4 Type I Quarters for Lectures	-	12	-
	R. Teachers Hostel – 8 Blocks – 2 Quarters Each	-	36	-
	S. Teachers Quarters – 3 Blocks	-	16	-
39	HOSTEL OFFICES	-	8	-
40	STATE BANK OF INDIA	-	18	-
41	UNION BANK	-	16	-
42	INDIAN POST OFFICE	-	14	-
43	S V U AUDITORIUM	-	12	-
44	GYMNASIUM	20	-	-

3. Electricity / Solar Power Consumption

Name of Service	Service No	Contracted Load (KVA)	Category & Voltage Level (KV)	Available Transformer Capacity (KVA)	Name of the Building Connected to the Service
The Registrar, SVU, TPT	(HT-23,27,36,156,246,301,529,2316) (LT- 174,175,176,292,293,557232)	RYB- (Red, Yellow, Blue)	160/200/400	250/350	All Buildings of Sri Venkateswara University

S. No.	Service No	Contracted Load (KVA)	Category & Voltage Level (KV)	Available Transformer Capacity (KVA)	Months	Year	Electricity Consumption	Bill Amount (RS.)
							Units	
1	(HT-23,27,36,156,246,301,529,2316) (LT-174,175,176,292,293,557232)	RYB- (Red, Yellow, Blue)	160/200/400	250/350	July	2017	69,461	6,73,771.7/-
2					August	2017	1,02,528	9,94,521.6/-
3					September	2017	1,16,947	11,34,385.9/-
4					October	2017	1,21,471	11,78,268.7/-
5					November	2017	86,249	8,36,615.3/-
6					December	2017	1,49,980	14,54,806/-
Total Amount								62,72,369.2/-

S. No.	Service No	Contracted Load (KVA)	Category & Voltage Level (KV)	Available Transformer Capacity (KVA)	Months	Year	Electricity Consumption	Bill Amount (RS.)
							Units	
1	(HT- 23,27,36,156,246, 301,529,2316) (LT- 174,175,176,292, 293,557232)	RYB- (Red, Yellow, Blue)	160/200/400	250/350	January	2018	1,65,706	16,40,489.4/-
2					February	2018	1,82,101	18,02,799.2/-
3					March	2018	1,91,145	18,92,335.5/-
4					April	2018	1,82,746	18,09,185.4/-
5					May	2018	1,70,707	16,89,999.3/-
6					June	2018	1,60,928	15,93,187.2/-
7					July	2018	1,49,736	14,82,386.4/-
8					August	2018	1,51,024	14,95,137.6/-
9					September	2018	1,78,258	17,64,754.2/-
10					October	2018	1,75,010	17,32,599/-
11					November	2018	1,54,119	15,25,778.1/-
12					December	2018	1,66,636	16,49,696.4/-
Total Amount								2,00,78,347.7/-

S. No.	Service No	Contracted Load (KVA)	Category & Voltage Level (KV)	Available Transformer Capacity (KVA)	Months	Year	Electricity Consumption	Bill Amount (RS.)
							Units	
1	(HT- 23,27,36,156,246, 301,529,2316) (LT- 174,175,176,292, 293,557232)	RYB- (Red, Yellow, Blue)	160/200/400	250/350	January	2019	1,62,362	16,07,383.8/-
2					February	2019	1,28,972	12,76,822.8/-
3					March	2019	1,74,999	17,32,490.1/-
4					April	2019	1,62,021	16,04,007.9/-
5					May	2019	1,44,517	14,30,718.3/-
6					June	2019	1,25,979	12,47,192.1/-
7					July	2019	1,36,400	13,50,360/-
8					August	2019	1,32,497	13,11,720.3/-
9					September	2019	1,12,748	11,16,205.2/-
10					October	2019	1,26,277	12,50,142.3/-
11					November	2019	1,18,060	11,68,794/-
12					December	2019	1,04,109	10,30,679.1/-
Total Amount								1,61,26,515.9/-

S. No.	Service No	Contracted Load (KVA)	Category & Voltage Level (KV)	Available Transformer Capacity (KVA)	Months	Year	Electricity Consumption	Bill Amount (RS.)
							Units	
1	(HT- 23,27,36,156,246, 301,529,2316) (LT- 174,175,176, 292,293,557232)	RYB- (Red, Yellow, Blue)	160/200/400	250/350	January	2020	1,42,154	12,79,386/-
2					February	2020	1,53,087	13,77,783/-
3					March	2020	2,91,533	26,23,797/-
4					April	2020		
5					May	2020	85,237	7,67,133/-
6					June	2020	1,12,450	10,12,050/-
7					July	2020	1,13,033	10,17,297/-
8					August	2020	1,01,946	9,17,514/-
9					September	2020	91,947	8,27,523/-
10					October	2020	1,00,368	9,03,312/-
11					November	2020	72,150	6,49,350/-
12					December	2020	80,295	7,22,655/-
Total Amount								1,20,97,800/-

S. No.	Service No	Contracted Load (KVA)	Category & Voltage Level (KV)	Available Transformer Capacity (KVA)	Months	Year	Electricity Consumption	Bill Amount (RS.)
							Units	
1	(HT-23,27,36,156,246,301,529,2316) (LT-174,175,176,292,293,557232)	RYB- (Red, Yellow, Blue)	160/200/400	250/350	January	2021	1,06,727	10,24,579.2/-
2					February	2021	1,36,716	13,12,473.6/-
3					March	2021	1,64,217	15,76,483.2/-
4					April	2021	1,36,231	13,07,817.6/-
5					May	2021	1,49,528	14,35,468.8/-
6					June	2021	1,26,305	12,12,528/-
7					July	2021	1,24,432	11,94,547.2/-
8					August	2021	1,10,349	10,59,350.4/-
9					September	2021	1,03,624	10,25,877.6/-
10					October	2021	1,04,914	10,07,174.4/-
11					November	2021	42,017	4,03,363.2/-
12					December	2021	87,843	8,43,292.8/-
Total Amount								1,34,02,956/-

S. No.	Service No	Contracted Load (KVA)	Category & Voltage Level (KV)	Available Transformer Capacity (KVA)	Months	Year	Electricity Consumption	Bill Amount (RS.)
							Units	
1	(HT-23,27,36,156,246,301,529,2316) (LT-174,175,176,292,293,557232)	RYB- (Red, Yellow, Blue)	160/200/400	250/350	January	2022	89,502	8,90,544.9
2					February	2022	1,04,219	10,36,979.05
3					March	2022	90,939	9,04,843.05
4					April	2022	1,04,064	10,35,436.8
5					May	2022	80,961	8,05,561.95
6					June	2022	95,572	9,50,941.4
7					July	2022	76,985	7,66,000.75
8					August	2022	88,917	8,84,724.15
9					September	2022	95,897	9,54,175.15
Total Amount								82,29,207.2

5.Air Conditioning (ACs)

S. NO.	BUILDING NAME	QUANTITY OF A/CS INSTALLED	CAPACITY OF A/C (IN TONS)
1.	ADMINISTRATIVE BUILDING	20	350
2.	PRAKASAM BHAVAN ARTS BLOCK	10	210
3.	DDE BUILDING	2	70
4.	JANARDHAN BHAVAN	-	30
5.	OLD MBA BUILDING	10	120
6.	PRESS BUILDING	-	10
7.	PHYSICAL SCIENCES BLOCK	30	230
8.	Dr. D.J. REDDY BHAVAN NATURAL SCIENCES BLOCK	25	240
9.	GEOGRAPHY SCIENCES BLOCK	-	80
10.	VAMANARAO BHAVAN	10	110
11.	CIVIL ENGINEERING BUILDING	15	70
12.	ECE BUILDING	12	74
13.	CHEMICAL ENGINEERING BUILDING	15	68
14.	MECHANICAL ENGINEERING BUILDING	10	53
15.	EEE & CSE BUILDING	14	69
16.	SVU LIBRARY	-	70
17.	HEALTH CENTRE	-	85
18.	PHYSICAL EDUCATION	-	37
19.	LAW & LIBRARY SCIENCE	-	40
20.	ORIENTAL RESEARCH INSTITUTE BUILDING	-	62
21.	POPULATION STUDIES & BIO- TECHNOLOGY– (Lecture theatre Complex)	6	1.5/2
22.	BIO-CHEMISTRY	5	1.5/2

23.	MICROBIOLOGY	2	1.5/2
24.	DST PURSE PROGRAM	8	1.5/2
25.	VIROLOGY BUILDING	6	1.5/2
26.	PHARMACY BUILDING	3	1.5/2
27.	ANDHRA BANK SCHOOL OF MANAGEMENT	6	1.5/2
28.	COMPUTER SCIENCE	2	1.5/2
29.	SEAPS (AUDITORIUM OPP)	7	1.5/2
30.	SVU COMPUTER CENTRE	4	1.5/2
31.	USIC BUILDING	2	1.5/2
32.	SVU CAMPUS SCHOOL	1	1.5/2
33.	ANNAMAYYA BHAVAN	-	-
34.	PRAKASAM RECREATION CENTRE	-	-
35.	I.A.S.E BUILDING	3	1.5/2
36.	Prof. CHOPPALA RATHNAM BHAVAN	5	1.5/2
37.	QUARTERS		
	a. Red buildings 6 No's	6	1.5/2
	b. Twin Quarters 12 No's	12	1.5/2
	c. Readers Quarters 8 No's (III SET)	-	-
	d. Lectures Quarters (I SET)	1	1.5/2
	e. Lectures Quarters (III SET)	2	1.5/2
	f. Superintendents & Quarters	2	1.5/2
	g. Superintendents & N.T. Quarters	2	1.5/2
	h. Warden & Deputy Warden Quarters	1	1.5/2
	i. Deputy Warden Quarters 4 No's	4	1.5/2
	j. Servant Quarters for Engineering	1	1.5/2

	k. Officers' Quarters	1	1.5/2
	l. UD m. C'S & LDC'S Quarters	1	1.5/2
	n. Lecturers Quarters (IV SET)	2	1.5/2
	o. Attenders & Peons Quarters	1	1.5/2
	p. II Type I Quarters for Professors /Readers	1	1.5/2
	q. 4 Type I Quarters for Professors. Readers	4	1.5/2
	r. 4 Type I Quarters for Lectures	4	1.5/2
	s. Teachers Hostel – 8 Blocks – 2 Quarters Each	8	1.5/2
	t. Teachers Quarters – 3 Blocks	3	1.5/2
38.	HOSTEL OFFICES		
39.	STATE BANK OF INDIA	4	1.5/2
40.	UNION BANK	4	1.5/2
41.	INDIAN POST OFFICE	1	1.5/2
42.	ANNAPOORNA CANTEEN	0	-

5. Mess

5.1. NO OF STUDENTS & MESS DETAILS OF SVU MEN'S HOSTELS (Engineering) Viswateja, Viswapragathi, Visweswara, Viswakarma			
S. No.	Description	Mess- A	Mess- B
1	Capacity of the Meals Cooking Per Session	480	4650
2	No. of LPG Cylinders are used for cooking per day	03	04
3	Type of LPG (Domestic /Commercial	Domestic	Domestic
Boiler Operating Timings			
4	Breakfast (Timings)	07:00 am to 09:00 am	07:00 am to 09:00 am
	Lunch (Timings)	11:30 am to 02:00 pm	11:30 am to 02:00 pm
	Dinner (Timings)	07:00 pm to 09:00 pm	07:00 pm to 09:00 pm
5	No of Idly steam vessels in Kitchen	02	02
Quantity of Items cooked per session			
6	Rice (in Kgs)	65	65
	Dal (in kgs)	14	14
	Vegetables (in kgs)	45	45
	Milk (in ltrs)	65	65
7	No.Of LPG Stoves in Kitchen	04	04
8	No. Of Tawa stoves in Kitchen	02	02

5.2 NO OF STUDENTS & MESS DETAILS OF SVU MEN'S HOSTELS (Arts, Sciences, CM&CS, Pharmacy, Law)

S. No.	Description	Mess- A (Blocks-A, B, F, I)	Mess-B (Block-C)	Mess-C (Block-D)	Mess-D (Block-E, G, J)	Mess-H (Block-H)
1	Capacity of the Meals Cooking Per Session	285	322	390	170	220
2	No. of LPG Cylinders are used for cooking per day	2/3	02	2/3	2	2
3	Type of LPG (Domestic /Commercial)	Domestic	Domestic	Domestic	Domestic	Domestic
Boiler Operating Timings						
4	Breakfast (Timings)	07:00 am to 09:00 am	07:00 am to 09:00 am	07:00 am to 09:00 am	07:00 am to 09:00 am	07:00 am to 09:00 am
	Lunch (Timings)	12:00 pm to 02:00 pm	12:00 pm to 02:00 pm	12:00 pm to 02:00 pm	12:00 pm to 02:00 pm	12:00 pm to 02:00 pm
	Dinner (Timings)	07:00 pm to 09:00 pm	07:00 pm To 09:00 pm	07:00 pm to 09:00 pm	07:00 pm to 09:00 pm	07:00 pm to 09:00 pm
5	No of Idly steam vessels in Kitchen	01	01	02	01	01
Quantity of Items cooked per session						
6	Rice (in kgs)	60	60	80	35	35 -40
	Dal (in kgs)	10	10	10	07	07
	Vegetables (in kgs)	95/Session	30	50	15	15/Session
	Milk (in ltrs)	20	35	40	30	30
7	No.Of LPG Stoves in Kitchen	04	04	05	04	04
8	No. Of Tawa stoves in Kitchen	02	02	02	01	01

5.3 NO OF STUDENTS & MESS DETAILS OF SVU WOMEN'S HOSTELS

S. No.	Description	Premises-I			Premises-II		
1	Capacity of the Meals Cooking Per Session	1180/1083			875/1050		
2	No. of LPG Cylinders are used for cooking per day	03			05		
3	Type of LPG (Domestic /Commercial)	Commercials & Domestic 1 Large 2 Small			Domestic 15		
Boiler Operating Timings							
4	Breakfast (Timings)	5:30 am to 09:00 am			5:30 am to 09: am		
	Lunch (Timings)	10:00 am to 1:00 am			10:00 am to 11:30 am		
	Dinner (Timings)	4:00 am to 6:00 pm			4:00 pm to 6:00 pm		
5	No of Idly steam vessels in Kitchen	02			03		
Quantity of Items cooked per day.							
6	Rice (in Kgs)	60			130		
	Dal (in kgs)	17			22		
	Vegetables (in kgs)	250			170		
	Milk (in ltrs)	120			185		
7	No. Of LPG Stoves in Kitchen	3 Burners	2 Burners	1 Burner	3 Burners	2 Burners	1 Burner
		1	1	1	2	2	1
8	No. Of Tawa stoves in Kitchen	3			3		

6.

JUNGLE REPORT

Total Number of Trees - 48,257

Total Number of Shrubs - 6,000

Herbs -29,358

Rare Species - 18

Overall this initiative will have to step forward towards contributing to India's nationally determined goals and achieving Carbon Neutrality by Sri Venkateswara University.

The Father of the Nation, Gandhi ji emphasized that "The Earth, the air, the land and the water are not an inheritance from our forefathers but on loan from our children". In the true spirit of Mahatma's insightful and prudent message,. began its march on the road that is still considered less travelled, the road leading towards the goal of re-visiting the Green Revolution by adopting a Green Policy that would transform the whole campus into "Carbon-neutral", "Eco-friendly" and Green campus.

రాయలపురం గ్రామ పంచాయతీ కార్యాలయము

తేదీ. 18.01.2021

శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం ప్రిన్సిపాల్ గారికి మా గ్రామము తరపున నమస్కారములు. శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయము నుండి మా గ్రామానికి విచ్చేసిన విద్యార్థిని, విద్యార్థులు చేపట్టిన కార్యక్రమ వివరాలు

ఉచిత వైద్య శిబిరాలు, ఉచితముగా మందుల పంపిణి, వైద్య శిబిరాల అవగాహన సదస్సులు, రక్తదాన ఆవశ్యకత, గ్రామ పరిసరాల శుభ్రత మరియు పరిశుభ్రత, నీటి సంరక్షణ విధానాలు వ్యర్థ పదార్థాలు సేకరణ మరియు దాని నిర్వాహణ, వ్యవసాయ సంబంధిత అనేక అంశాల పై అవగాహన సదస్సులు మరియు నిర్మూలన కార్యక్రమాలు, గ్రామ ప్రజలకు ఓటు హక్కు దాని యొక్క విశిష్టత పై అవగాహన కలిపించడం, గర్భిణీ స్త్రీలకు ప్రత్యేక వైద్య శిబిరాలు నిర్వహించి వారికి ఉచిత మందుల పంపిణి, బాలికలకు విద్య ఆవశ్యకత, విద్యార్థిని విద్యార్థులకు మరియు తల్లిదండ్రులకు పోషక ఆహార పద్ధతులు మీద అవగాహన కల్పించటం, స్త్రీలకు ప్రత్యేక కార్యక్రమాలైనటువంటి పేపర్ ప్లేట్స్ తయారీ, ఎంబ్రాయిడరీ, సారీ రోలింగ్, ఫాబ్రిక్ పెయింటింగ్ వంటి నైపుణ్య శిక్షణ కార్యక్రమాలు నిర్వహించటం ద్వారా వారి యొక్క నెలవారీ ఆదాయ వనరులను పెంచటం జరిగింది.

ఈ కార్యక్రమాల నిర్వహణ గత నాలుగు సంవత్సరములుగా జరిపించటం వలన మా గ్రామ పురోభివృద్ధి కి పాటుపడుతున్న విశ్వవిద్యాలయ అధికారులకు ధన్య వాదములు తెలుపుకుంటున్నాము.

ఇట్లు,

p. Venkatesh

SARPANCH
Rayalapuram Grama Panchayath
Chandragiri Mandal

అగరాల గ్రామ పంచాయతీ కార్యాలయము

తేదీ. 08.01.2021

శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయ అధ్యాపిక మరియు విద్యార్థిని విద్యార్థులనులచే మా గ్రామము నందు క్రింద కనపరిచిన వివిధ కార్యక్రమాలను విజయ వంతముగా నిర్వహించటము వలన మా గ్రామ ప్రజలకు ఎన్నో విధాలా లాభము చేకూరినది.

1. మా గ్రామము నందు ఆరోగ్య అవగాహనా సదస్సులు మరియు ఉచిత వైద్య శిబిరాలు చేయుట వలన మా గ్రామ ప్రజలకు ఆరోగ్య ప్రతిరక్షణ పై అవగాహనా కలిగింది.

2. మా గ్రామము నందు గర్భిణీ స్త్రీలకూ, పిల్లలకు, బడికి వెళ్తున్న విద్యార్థిని విద్యార్థులకు ఉచిత వైద్య శిబిరాలు ద్వారా, తిరుపతి నుండి సంబంధిత వైద్యుల చేత ఉచిత మందుల పంపిణీ చేయడం జరిగింది.

3. విశ్వవిద్యాలయ విద్యార్థిని విద్యార్థులు చే మా గ్రామ ప్రజలకు కాగితపు కవర్లు తయారీ పై నైపుణ్య శిక్షణ కార్యక్రమము నిర్వహించి మా గ్రామ ప్రజలను ప్రోత్సహించడం వలన వారి యొక్క ఆదయ వనరులు పెంచడం జరిగింది.

4. ఇదే విధముగా గ్రామ అభివృద్ధికి పలురకాల కార్యక్రమాలలో శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయ అధ్యాపకులు విద్యార్థిని విద్యార్థులు పాల్గొని వారి సహాయ సహకారములు అందించి మా గ్రామ అభివృద్ధికి ఎంతో సహాయము చేయడము జరిగింది.

5. గత గడిచిన మూడు, నాలుగు సంవత్సరాలలో మా గ్రామాభివృద్ధి మరియు మా గ్రామ పరిసర ప్రాంతాలు అన్ని చాల మెరుగుపడినందుకు విశ్వవిద్యాలయ సిబ్బందికి మేము ఎంతగానో రుణపడి ఉన్నాము.

ఇట్లు,



అగరాల గ్రామ పంచాయతీ సభ్యుడు
SARBANCH
AGARALA PANCHAYATI
CHANDRAGIRI MANDALAM
Cell. 9849677399

పిచ్చినాయుడుపల్లి గ్రామ పంచాయతీ కార్యాలయము

తేదీ.22.01.2021

శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయ బృందానికి మా గ్రామములో చేపట్టిన వివిధ రకాల అభివృద్ధి మరియు సంక్షేమ కార్యక్రమాలను నిర్వహించిన వారికి ధన్యవాదములు తెలుపుకుంటూ

గ్రామము నందు పరిశుద్ధ కార్యక్రమాలు, వ్యర్థ పథార్థల నిర్మూలన, విద్య, వైద్యం, ఆరోగ్యము, వంటి కార్యక్రమాలు పై అవగాహనా కల్పించటం, ఉచిత వైద్య శిబిరం నిర్వహించటం, ఉచిత మందుల పంపిణీ మరియు పిల్లలకు, గర్భిణీ స్త్రీలకూ ప్రత్యేక వైద్య శిబిరాలు నిర్వహించి వారికి ఆరోగ్య సంరక్షణ విధానాలను నేర్పించటం వంటి కార్యక్రమాలు గత మూడు, నాలుగు ఏళ్లలో గ్రామాభివృద్ధి సంబంధించిన కార్యక్రమాలు ఎన్నో చేయటం వలన మా గ్రామ ప్రజలకు ఎంతో ఉపకారము జరిగింది. జాతీయ సేవ పథకం విద్యార్థుల బృందము చే మా గ్రామము నందు రోడ్లు వేయటం, కాలువలు శుభ్రము చేయటం, నీటి పరిరక్షణ విధానాలను విశిదీకరించడం వంటి కార్యక్రమాల వలన మా గ్రామ ప్రజలు ఎంతో చైతన్యవంతులయ్యారు. ఇటువంటి కార్యక్రమాలను విశ్వవిద్యాలయ విద్యార్థిని విద్యార్థులు ఎన్నో చేయాలనీ తద్వారా మా గ్రామ అభివృద్ధికి తోడ్పడుతారు అని కోరుకుంటున్నాము.

ఇట్లు,

M. Bhaykav

SARPANCH

Pichinaidupalli Grama Panchayath
Chandragiri Mandal

తొండవాడ గ్రామ పంచాయతీ కార్యాలయము

తేదీ. 05.01.2021

శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయ అధికారులకు నమస్కారాలు.
శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయము నుండి వచ్చిన విద్యార్థిని విద్యార్థులు మరియు జాతీయ సేవ పథకం విద్యార్థులు మా గ్రామము నందు ఎన్నో రకాల కార్యక్రమాల నిర్వాహణ చేయడం జరిగింది.

1. విద్యార్థిని విద్యార్థులు వ్యవసాయ సంబంధిత నూతన పద్ధతులు, పంట మార్పిడి విధానాలు మరియు భూమిని సారవంతము చేయడం సంబంధిత మందుల వాడకం, మరియు సేంద్రియ వ్యవసాయ పద్ధతుల కార్యక్రమాల వివరాలను మా గ్రామ వ్యవసాయదారులకు వివరించటం వలన వ్యవసాయ సంబంధిత కార్యక్రమాలు ఊపందుకోవడం జరిగింది. ఈ కార్యక్రమానికి

శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయము అధికారులతో పాటు ఆంధ్ర ప్రదేశ్ వ్యవసాయ జిల్లా సంచాలకులు కూడా కార్యక్రమాలలో పాల్గొని వ్యవసాయ ఆధారిత నిర్వాహణ ఎన్నో సూచనలు ఇవ్వడం జరిగింది.

2. మా గ్రామములో విశ్వవిద్యాలయ అధికారులు సంబంధిత జిల్లా యంత్రాంగముతో పాటు కలిసి విద్య, వైద్యము, ఆరోగ్యము, వృత్తివిద్యా, నైపుణ్యాలు, స్త్రీలకూ ప్రత్యేక శిక్షణలు సంబంధిత కార్యక్రమాలను 2017 నుండి నిరంతరాయంగా చేస్తునందుకు వారికీ మా ధన్యవాదములు.

ఇట్లు,


తొండవాడ గ్రామ పంచాయతీ సర్పంచ్
Thondavada Grama Panchayat



శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

AGARALA VILLAGE

Income Generating Programme - Saree Rolling & Polishing on 21.07.2017





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

TONDAVADA VILLAGE

Income Generating Programme - Organic Fertilizers on 05.09.2017





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

RAYALAPURAM VILLAGE

Income Generation Programme - Agarbathi Making on 13-12-2017



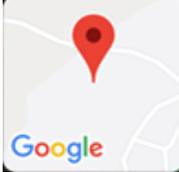


శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

PICHINAYUDUPALLI VILLAGE

Income Generating Programme - Paper Plates Making - 23.01.2018



Pichi Nayudu Palli, Chandragiri, Andhra Pradesh, India
Latitude 13.576129"N
Long 79.333832"E
23/01/2018



శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

PICHINAYUDUPALLI VILLAGE

Income Generating Programme - Paper Bags Making on 09.03.2018



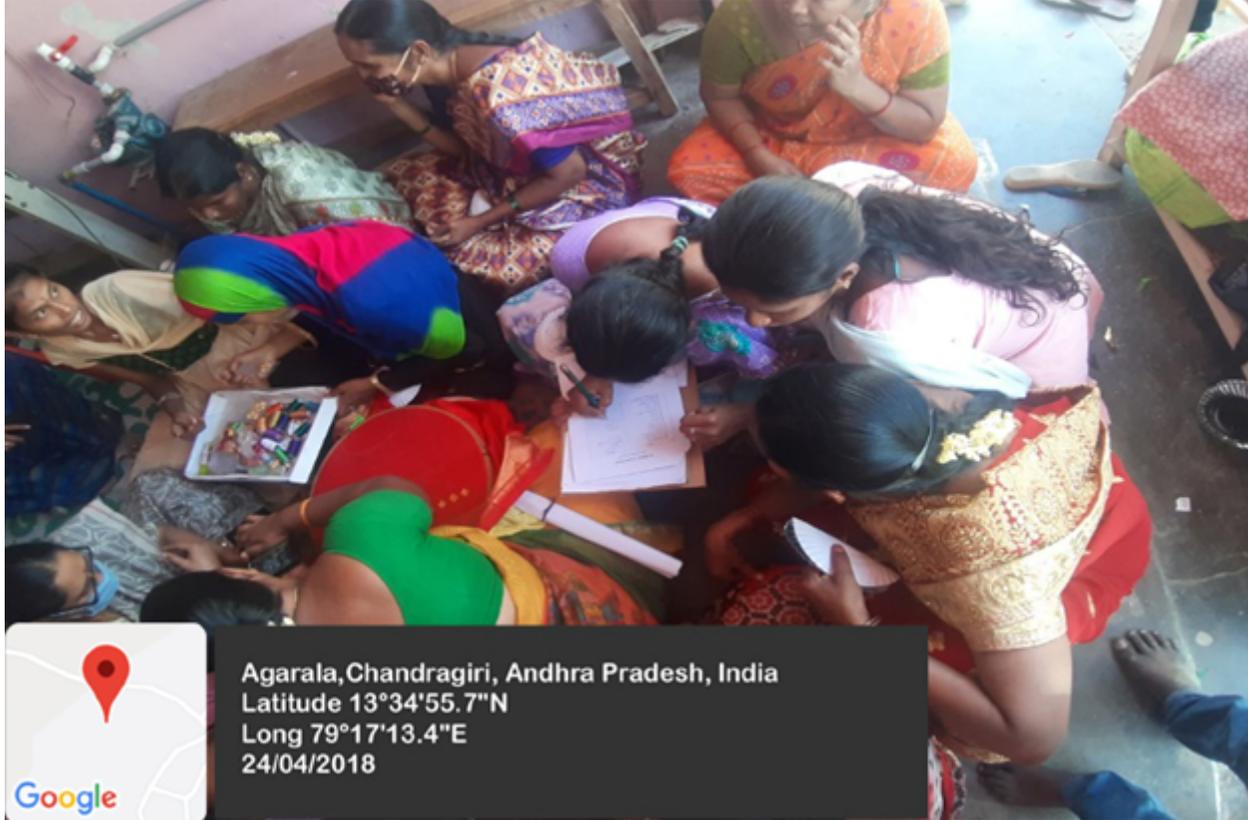


శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

AGARALA VILLAGE

Income Generating Programme - Fabric Painting & Hand Embroidery on 24.04.2018





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

TONDAVADA VILLAGE

Income Generating Programme - Basics in Tailoring on 16.06.2018





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

AGARALA VILLAGE

Income Generating Programme - Eco Friendly Cutlery 23.07.2018





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

TONDAVADA VILLAGE

Income Generating Programme - Paper Bags Making on 12.08.2018





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

AGARALA VILLAGE

Income Generating Programme - AGARABATHI Making on 18.09.2018





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

PICHINAIDUPALLI VILLAGE

Income Generating Programme - Saree Rolling & Polishing on 21.10.2018





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

TONDAVADA VILLAGE

AWARENESS ON PREGNANCY FOR LADIES - 17.11.2018





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

PICHINAIDUPALLI VILLAGE

Income Generating Programme - 27.12.2018





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

TONDAVADA VILLAGE

Income Generating Programme - Embroidery Skills on 22.01.2019





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

AGARALA & TONDAVADA VILLAGE

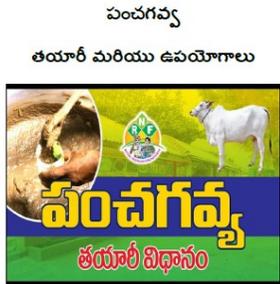
Tree Plantation Programme on 23.03.2019 & 25.03.2019



ARYALAPURAM VILLAGE

PANCHGAVYA - 2019

వరి, రకరకాల కూరగాయలు, పండ్ల పంటలైన మామిడి, అరటి, గువా, అప్పు సున్నం నగదు పంటలైన చెరకు, పసుపు, మల్లె, మొరంగా, తోటల పంటలు పంచకావ్య దరిభాషుకు చాలా బాగా స్పందించాయి. సోమసుందరం మరియు ఇతరులు, (2004) పంచకావ్యలో ఇండోల్ ఎసిటిక్ యాసిడ్, గిద్దిరాశిక్ యాసిడ్ మరియు సైటోకినిన్ వంటి వృద్ధి నియంత్రణ పదార్థాలు మరియు అవసరమైన మొక్కల రోపణాలు ఉన్నాయని నివేదించింది. ఇది ప్రయోజనకరమైన, ప్రజాచేరుమైన సూక్ష్మ జీవులు, ప్రధానంగా లాక్టిక్ యాసిడ్ బ్యాక్టీరియా, ఈస్ట్, ఆక్సిజీనైజింగ్ కీరణజన్య సంయోగక్రియ మరియు కోన్ని ఫిలింలతో పాటు ఆటోటాక్సడ్ ఆటోస్పర్టిక్ మరియు సార్వోటాక్సీరియం వంటి ప్రయోజనకరమైన మరియు నిరూపితమైన జీవ విరుగులను కలిగి ఉంటుంది. జయశ్రీ మరియు జార్జ్ (2006)



పంచగవ్య తయారీ విధానం
విస్తరణ అధ్యయన కేంద్రం
 (CENTRE FOR EXTENSION STUDIES)
శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం
తిరుపతి
డిసెంబర్ -2019

వప ద్రావణాలు
 తయారు చేయడానికి: వేపకులును పువ్వులకు చేసి గిన్నాలో, నీరు మరియు వేపకు పువ్వుని కలిపి మరిగించి చల్లార్చాలి ఆ నీరు. చల్లారిన తరువాత వడకట్టాలి ఈ వేపకు నీటితో మూడురకాల ద్రావణాలను తయారు చేసుకోవచ్చు.
 1. ఏదైనా నూనెని తీటు (వేరుసనగ, నువ్వులు, కొబ్బరి) వేపకు నీటిలో అరకలుపు మన రోసి బాగా కలియబెట్టాలి
 2. పచ్చిమిరపకాయలు వెళ్ళుల్లి పువ్వుని వేపకు రసం లో కలిపి ఒక్కరోజు తయారాత వడగట్టాలి.
 3. వేపకు పువ్వులో ఒక తీటు నీరు, పొగాకు కాడలను కలపాలి. దీనిని ఒక వారం అలాగే ఉంచి తరువాత వడకట్టాలి.

ప్రయోజనాలు:
 ఈ ద్రావణాలను ఎరువు లాగా వాడవచ్చు. ఈ ద్రావణము చేరు వలన పురుగులను చంపకుండా అవి పారిపోయే లా చేస్తుంది. పునరుత్పత్తి లేకుండా చేస్తుంది. వీటిని ఇంటి పంటలకు ఉపయోగించవచ్చు.

వేపకుతో పురుగుల మందులు తయారీ మరియు ఉపయోగాలు



విస్తరణ అధ్యయన కేంద్రం
 (CENTRE FOR EXTENSION STUDIES)
శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం
తిరుపతి
డిసెంబర్ -2019

మహిళా సాధికారత: రేపన కార్మికుల ఖాతా కేసు 18 ఏళ్ళు లేదా అంతకంటే ఎక్కువ వయస్సు ఉన్న ఇంటి పెద్ద మహిళ ఇంటి అధిపతి. గ్రెన్స్ రిటైన్ మెకానిజం: జిల్లా మరియు రాష్ట్ర స్థాయిలో ఫిర్యాదుల పరిష్కార విధానం. ప్రస్తుత యంత్రాలను ఉపయోగించడానికి లేదా ప్రత్యేక యంత్రాంగాన్ని ఏర్పాటు చేయడానికి రాష్ట్రాలకు సౌలభ్యం ఉంటుంది. ఇంజనీరింగ్ రవాణా ఖర్చులు మరియు ఆహార ధాన్యాలు మరియు ఎన్.పి.ఎన్. డీలర్ మార్కెట్ నిర్మాణం: రాష్ట్రంలోని ఆహార ధాన్యాల రవాణా, దాని నిర్మాణం మరియు ఎన్.పి.ఎన్. డీలర్ మార్కెట్ నిలబడనల ప్రకారం రాష్ట్రాలు వారు చేసిన ఖర్చులను తీర్చడంలో కేంద్ర ప్రభుత్వం సహాయం చేస్తుంది. ఈ ప్రయోజనం కేసు రూపొందించబడింది. పౌరసర్వకల మరియు జవాబుదారీతనం: పౌరసర్వకల మరియు జవాబుదారీతనం ఉండేలా పిడిఎస్కు సంబంధించిన రికార్డులను లభ్యతం చేయడం, సామాజిక ఆడిట్లు మరియు విజిలన్స్ కమిటీలను ఏర్పాటు చేయడం వంటివి ఏర్పాటు చేయబడ్డాయి. ఆహార భద్రతా భద్రత: అధిక కలిగిన ఆహార ధాన్యాలు లేదా బోజనం సరఫరా చేయకపోతే అధిక కలిగిన లబ్ధిదారులకు ఆహార భద్రత భద్రం కల్పించడం.



జాతీయ ఆహార భద్రత పథకం
విస్తరణ అధ్యయన కేంద్రం
 (CENTRE FOR EXTENSION STUDIES)
శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం
తిరుపతి
డిసెంబర్ -2019

2. వ్యవసాయం కోసం కార్యక్రమాలను ప్రణాళిక మరియు అమలు చేయడంలో రాష్ట్రాలకు వశ్యత మరియు స్వయంప్రతిపత్తిని అందించడం
 3. జిల్లాలు, రాష్ట్రాలకు వ్యవసాయ ప్రణాళికల తయారీ ఉండేలా చూడటం ముఖ్యమైన పంటలలో దిగుబడి అంతలాను తగ్గించే లక్ష్యాన్ని సాధించడం రైతులకు రాబడిని పెంచడానికి
 4. వ్యవసాయం మరియు అనుబంధ రంగాలను సమగ్ర పద్ధతిలో పరిష్కరించడం

రాష్ట్రీయ కృషి వికాస యోజన సేవ
 వ్యవసాయం మరియు అనుబంధ రంగాలలో నెమ్మదిగా వృద్ధి చెందుతున్న ఆంధ్రప్రదేశ్, జాతీయ అభివృద్ధి మండలి (ఎన్.డి.సి), 2007 మే 29 న జరిగిన సమావేశంలో ప్రత్యేక అదనపు కేంద్ర సహాయ పథకం (ఆర్.కె.పి.వై) ప్రారంభించాలని నిర్ణయించింది. రైతుల అవసరాలను తీర్చడానికి వ్యవసాయ అభివృద్ధి వ్యూహాలను తీరిగి మార్చాలని ఎన్.డి.సి తీర్మానించింది మరియు వ్యవసాయాన్ని పునరుజ్జీవింపచేయడానికి ఒక వ్యూహాన్ని రూపొందించాలని కేంద్ర, రాష్ట్ర ప్రభుత్వాలకు పేలుపునిచ్చింది. 11 వ ప్రణాళికలో వ్యవసాయ రంగంలో 4 శాతం వార్షిక వృద్ధిని సాధించాలని నిబద్ధతను ఎన్.డి.సి పునరుద్ఘాటించింది.

రాష్ట్రీయ కృషి వికాస యోజన



విస్తరణ అధ్యయన కేంద్రం
 (CENTRE FOR EXTENSION STUDIES)
శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం
తిరుపతి
డిసెంబర్ -2019

TONDAVADA VILLAGE

JEEVAMRUTHAM - 2019



ప్రయోజనాలు:

జీవామ్మతం చల్లిన భూమిలో వానపాములు చైతన్యవంతమై అన్ని రకాల పోషకాలను పంటలకు అందించేందుకు నిరంతరం శ్రమిస్తాయి. జీవనద్రవ్యంతో కూడిన భూసారాన్ని పరిరక్షించుకోవడం అవసరం. మెట్ట పొలాల్లో అద్దాదనకు గడ్డి లేకపోతే, భూమిని ప్రస్తుత దుక్కే చేసి మట్టి పెళ్లలతో అద్దాదనకు కల్పించవచ్చు ప్రకృతి వ్యవసాయంలో ఎటువంటి ఎరువు వేయనక్కర లేదు. దీని లేదా నాటు ఆవు పేద, మూత్రంతో తయారైన 'జీవామ్మతం'లో కోతానుకోట్ల సూక్ష్మజీవులు ఉంటాయి. ద్రవ జీవామ్మతం పంటకు బలాన్ని ఇస్తుంది. ఈ జీవామ్మతమును ద్రవ, ఘన రూపాలలో తయారు చేసుకోవచ్చు. మనం పంటకు నీరు పెట్టి కల్వ దగ్గర లేదా పంటలో దీనిని పోసుకోవాలి. ఈ విధంగా తయారు చేసుకున్న మిశ్రమం ఒక ఎకరాకు పనిచేస్తుంది.

జీవామ్మతం

తయారీ మరియు ఉపయోగాలు



విస్తరణ అధ్యయన కేంద్రం (CENTRE FOR EXTENSION STUDIES) శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

తిరుపతి

డిసెంబర్ -2019

ఎ పి ఎ పి పి ప్రాజెక్టు కింద పార్శ్వ లిస్ట్ చేయబడిన కంపెనీలు

1. ఇపేసు ఇండస్ట్రీ లిమిటెడ్
2. జైన్ ఇరిగేషన్ సిస్టం లిమిటెడ్
3. ప్రీమియర్ ఇరిగేషన్ ఎక్స్‌టెన్షన్ మెంట్ లిమిటెడ్
4. నాగార్జున ఫార్మా ఇండియా లిమిటెడ్
5. పరిశీలన ఇండస్ట్రీస్ లిమిటెడ్
6. నేతాపేట ఇరిగేషన్ ఇండియా ప్రై. లిమిటెడ్
7. ఫ్లాష్ ఫ్లానెస్ ఇండస్ట్రీస్ (ఇండియా) లిమిటెడ్ లబ్ధిదారుల ఎవేక విధానం

పైకే ఇరిగేషన్ సిస్టమ్స్ సస్టై చేసేవారు ఆయా గ్రామాలకు చెందిన ఉద్యానవన వ్యవసాయ/పట్టు పరిశ్రమ/ చెరకు డిపార్ట్ మెంట్ వారు కూడా సర్వేను పూర్తిచేసి అందుకు సంబంధించిన లిస్టును తయారు చేయవలసి ఉంటుంది. ఆ తయారు కాబడిన లిస్ట్ ఆధార పొందిన రైతుల వివరాలు మరియు భూమికి సంబంధించిన వివరాలు, ఆ భూమిలో ఇంతకు ముందు పండించిన పంట వివరాలు / అలాగే పండించబోయే పంట వివరాలు పొందుపర్చాలి. పైకే ఇరిగేషన్ సిస్టం యొక్క అంచనా విలువ కూడా తెలియజేయాలి. పైకే ఇరిగేషన్ సిస్టం ఏర్పాటుకు సంబంధించి ఆయా రైతుల నుండి అంగీకార పత్రాలు పొందవలసి ఉంటుంది.

డ్రీమ్ ఇరిగేషన్

సూక్ష్మనీటి పారుదల పథకం



విస్తరణ అధ్యయన కేంద్రం (CENTRE FOR EXTENSION STUDIES) శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

తిరుపతి

డిసెంబర్ -2019

మౌలిక సదుపాయాలు

ప్రతి అంగన్వాడీ కేంద్రం లో ఒక బీరువా, ఒక టీబులు, ఒక కుర్చీ, జాతీయ జండా, ప్రథమ చికిత్స కేబ్, క్రాసునీటి సదుపాయం, ఆరోగ్య కార్డులు, పెరుగుదల దార్లులు, రికార్డులు, మరియు మరుగు దొడ్డి సదుపాయాలు ఉండాలి.

ప్రయోజనాలు

దశాబ్దాల ఆకట్టుకున్న వృద్ధి ఉన్నప్పటికీ, భారతదేశంలో వైద్యుల కొరత ఉంది. 2013 లో డాక్టర్ జనాభా నిష్పత్తి 1: 1800; సిపార్లు చేసిన స్థాయి 1: 1000. అంగన్వాడీ వ్యవస్థ ద్వారా, స్థానిక జనాభాకు సరసమైన మరియు అందుబాటులో ఉన్న ఆరోగ్య సంరక్షణను అందించే లక్ష్యాన్ని చేరుకోవడానికి దేశం ప్రయత్నిస్తోంది. అదే గ్రామీణ ప్రాంతంలో నివసిస్తున్న వైద్యుల కంటే అంగన్వాడీ కార్మికులకు ప్రయోజనం ఉంది, ఇది వారికి ప్రాంతంలోని ఆరోగ్య స్థితిపై అవగాహన కల్పిస్తుంది మరియు సమస్యల కారణాన్ని గుర్తించడంలో మరియు వారిని ఎదుర్కోవడంలో సహాయపడుతుంది. వారు మంచి సామాజిక వైద్యులను కూడా కలిగి ఉంటారు మరియు అందువల్ల స్థానిక ప్రజలతో మరింత సులభంగా సంభాషించవచ్చు.

అంగన్వాడీ కేంద్రాల ప్రాముఖ్యత



విస్తరణ అధ్యయన కేంద్రం (CENTRE FOR EXTENSION STUDIES) శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

తిరుపతి

డిసెంబర్ -2019

" స్వస్థ ధారా, ఖేత హారా." - ఆరోగ్యకరమైన భూమి, గ్రిన్ సామ్.

నేల ఆరోగ్యం యొక్క ప్రస్తుత స్థితిని అంచనా వేయడానికి మరియు కాలక్రమేణా ఉపయోగించినప్పుడు, భూ నిర్వహణ ద్వారా ప్రభావితమైన నేల ఆరోగ్యంలో మార్పులను నిర్ణయించడానికి ఒక నేల ఆరోగ్య కార్డు ఉపయోగించబడుతుంది. నేల ఆరోగ్య కార్డు నేల ఆరోగ్య సూచికలను మరియు అనుబంధ వివరణాత్మక పదాలను ప్రదర్శిస్తుంది. సూచికలు సాధారణంగా రైతుల ఆచరణాత్మక అనుభవం మరియు స్థానిక సహజ వనరుల పరిజ్ఞానంపై ఆధారపడి ఉంటాయి. సాంకేతిక లేదా ప్రయోగశాల పరికరాల సహాయం లేకుండా అంచనా వేయగల నేల ఆరోగ్య సూచికలను కార్డు జాబితా చేస్తుంది.

సాయిల్ హెల్త్ కార్డ్ (ఎస్ హెచ్ సి) అనేది వ్యవసాయ మరియు రైతు సంక్షేమ మంత్రిత్వ శాఖ ఆధ్వర్యంలోని వ్యవసాయ మరియు సహకార శాఖచే ప్రోత్సహించబడిన భారత ప్రభుత్వ పథకం. ఇది అన్ని రాష్ట్ర మరియు కేంద్ర పాలిత ప్రభుత్వాల వ్యవసాయ శాఖ ద్వారా అమలు చేయబడుతోంది.

సాయిల్ హెల్త్ కార్డ్



విస్తరణ అధ్యయన కేంద్రం (CENTRE FOR EXTENSION STUDIES) శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

తిరుపతి

డిసెంబర్ -2019

2021

AGARALA

సహజ సస్య రక్షణ పద్ధతులు



విస్తరణ అధ్యయన కేంద్రం

శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం, తిరుపతి

జనవరి- 2021

TONDAVADA

భారతదేశంలో స్త్రీల హక్కులు - చట్టాలు



విస్తరణ అధ్యయన కేంద్రం

శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం, తిరుపతి

డిసెంబర్ 2021-

RAYALAPURAM

లింగ సమానత్వం - నిర్వచనం పరిచయం



విస్తరణ అధ్యయన కేంద్రం

శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం, తిరుపతి

డిసెంబర్-2021



శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

AGARALA VILLAGE

Blood Donation Camp - 11.11.2017





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

RAYALAPURAM VILLAGE

Blood Donation Camp- 14.4.2018





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

PICHINAIDUPALLI VILLAGE

Blood Donation Camp - 16.04.2019





श्री वेङ्कटेश्वर विश्वविद्यालयम्

SRI VENKATESWARA UNIVERSITY

TONDAVADA VILLAGE

Blood Donation Camp - 04.01.2021





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

RAYALAPURAM VILLAGE

Tree plantation & Road formation - 18.8.2017



Tree plantation



Roads formation





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

AGARALA VILLAGE

Voters day - 25.01.2020





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

RAYALAPURAM VILLAGE

Swatch Bharath - 05.08.2018





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

TONDAVADA VILLAGE

Swatch Bharath - 16.07.2019





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

AGARALA VILLAGE

Tree Plantation - 05.06.2019





శ్రీ వెంకటేశ్వర విశ్వవిద్యాలయం

SRI VENKATESWARA UNIVERSITY

Medical camp - 18.10.2018

AGARALA VILLAGE



PICHINAIDUPALLI VILLAGE



VILLAGE ADOPTION -A BEST PRACTICE OF SRI VENKATESWARA UNIVERSITY

Mission of the University :

Sri Venkateswara University was established with a Mission to impart Higher Education among the students of the locality and to create an environment for the intellectual, ethical, moral and physical upliftment of the people, by preserving their heritages and exposing the students to modern technologies to make them aware of their rights and duties for the betterment of the society.

Vision of the University :

To strengthen the communities with the spirit of Higher Education by upholding the ethos of intellectuality and value orientations for a sustainable society

The Context:

Sri Venkateswara University, since its inception focuses on building a strong linkage with the people of the neighbouring villages. This specific approach can be explicitly attributed to the fact that the University is founded exclusively with the funds raised by the public. Therefore, the University deemed it a moral obligation to address the societal needs and contribute to redress the problems faced by the people of the neighbouring villages. Keeping in mind all these and in a bid to uphold its mission, the University adopted a village, and took initiatives for Community Development. Besides, with a motive to instil a sense of civic responsibilities among the students and to introduce them to the ground realities, various extension and outreach activities are undertaken in other villages too through different units of the University.

Objectives of the Practice:

Accomplishment of societal commitment through initiatives of social and economic well being of the rural people by integrating knowledge into practice is one of the primary motives of the University. Instilling a strong sense of ethical and humanitarian values among the students, besides developing leadership quality among them is another fundamental objective behind the mission of 'Village Adoption' and other extension activities in the neighbouring area of Sri Venkateswara University.

The Practice:

Extension activities are a strong forte of the Sri Venkateswara University which exhibits an enduring commitment to the society as well as the nation. The various programmes initiated by the Extension Cell, NSS, NCC, the Student's of different departments go beyond curriculum to foster social empowerment, livelihood security and improvement of the socio-economic standard of the people of the neighbourhood.

The multifaceted initiatives and practices undertaken by different societies, forums and units of the University in the form of extension and outreach programme depict the ethos of the University. A cross sectional view of all the activities and its services that extend to the society at large brings to the fore the importance that Sri Venkateswara University has ascribed in fostering the mission of transforming the neighbouring rural areas. The University seeks to align its activities to the national standard through a concerted effort of faculties, students and outsourced resources. The various initiatives and practices are as follows :

Life and Livelihood Initiatives at Village Level:

- Cattle health check-up camp in different villages

- Medical Camps in different villages
- Saree Rolling, Fabric painting, Embroidery, Paper Plates Preparation training for women in different villages
- Organising of Blood donation Camps & Blood grouping Camps.
- Water Treatment plant (Improvement)
- Awareness programme on Public health, sanitation and health issues of women especially pregnant ladies and Children.
- Organic farming in different villages.
- Crop rotation and its uses in selected villages

Health and sensitization

- Health Awareness Programme by NSS/NCC (Sri Venkateswara University Unit)
- COVID-19 precautions and regulations by NSS/ NCC, Sri Venkateswara University
- Community diseases and awareness Programmes

Environmental Awareness

- Plantation Programmes in Agarala village by Sri Venkateswara University Extension Cell
- Plantation Programmes in Shanambatla village by NSS/NCC , Sri Venkateswara University
- Cleanliness Drive at Pichhinaidu Village by NSS Unit
- Swachh Bharat Programme in Rayalapuram Village by S.V.U.College of Sciences, Sri Venkateswara University

Obstacles faced if any /strategies adopted to overcome them

While augmenting the mission of fostering transformation of neighbourhood villages, Sri Venkateswara University is hindered with various obstacles. However, the different departments, cells and forums carry out the activities by mostly utilising own resources. The Government agencies and non-government organisations are approached for funding such activities. The frequently encountered problems are-

- Lack of scientific spirit owing to poor literacy level of the villagers is the major hurdles which dissuades them from accepting new ideas and incorporating new approaches into their lifestyle.
- Lack of motivation of the people especially towards entrepreneurial mindset.
- Limited financial resources of the University stand as a bigger hurdle for taking up capital intensive initiatives.

Strategies to overcome the hurdles

- Efforts have been made in the form of awareness, guidance and support programmes for the academic and intellectual development of the upcoming generation of the society and thereby infuse them with the scientific spirit.
- In order to augment the mission of intellectual and socio-economic transformation of the rural areas around the University and to minimize the issue of financial hardship for the mission, the University has started the necessary communication for registering the University under 'Unnat Bharat Abhiyan' (UBA) under the Ministry of MHRD.

Impact of the Practice

- The appreciation and the expression of gratitude by managements of the beneficiary schools where the special classes by the faculties and the peers were held indicates the level of success of the programmes.
- There are four Self Help Groups (SHGs) in the village formed after the adoption of the village. These SHGs are working towards financial self-sufficiency by engaging in mushroom cultivation, poultry rearing etc.
- The impact of cleanliness drives, awareness programmes etc. could be gauged from the fact that the villagers have become environmentally conscious. They keep their roads and households very clean and the bamboo dustbins provided by the University are found in the village.

Resources Required

Both financial resources and technically sound human resource is required for augmenting the extension and outreach programme in the neighbouring villages. The fund currently available for such initiatives is not sufficient. It is expected that through approval of schemes under UBA, the University would be able to deliver service to the community as per the requirements of the villagers. Capacity building programmes for students and faculty and active networks with alumni can provide enhanced scope for meaningful work.

SRI VENKATESWARA UNIVERSITY :: NSS ACTIVITIES

NSS volunteers generally work with villages, slums and voluntary agencies to complete 120 hours of regular activities during an academic year. As per the fundamental principles of National Service Scheme, a volunteer is expected to remain in constant touch with the community. Hence, it is of vital importance that a particular village/slum is selected for implementation of NSS Programmes. As the NSS volunteer is to live with the members of the community and learn from their experience during his/her tenure in NSS, the Village/Slum should be carefully selected for adoption by NSS unit.

1. Adoption of Villages

Adoption of a village and area is a very meaningful programme in NSS. It is far better to concentrate attention on one village and take up the task for development perspective, than to fritter away energy in many locations involving too many activities which may not be completed at all or where the follow up action may not be possible. From this point of view, village adoption programme should ensure continuity of work vis-a-vis sustained action, evaluation and follow up work.

Contacting Village/Area Leaders

As a first step in this programme, it is necessary to establish contact with more than one village which would help to select a village where 'Leadership' is well established. In other words, selecting a village with proper leadership is very important as the sustained follow up action and evaluation is ensured in such places. To start with, the NSS unit can take the help of the Block Authorities, District Panchayat Officer, District Medical Officer, Extension Officer of Agriculture, Irrigation and Education Departments for the selection of the village. It is to be noted that the selected villages should be within a short distance from the college so that constant contact can easily be made.

Survey of the Village/Area

Before drawing up the plan of action, it is absolutely necessary to conduct a comprehensive survey of few villages situated at a short distance from the University. The assistance from the teachers and students of Economics, Commerce, Geography, statistics, Home Science, Social work, Psychology and Education etc. have to be sought for the purpose. Conducting socio-economic survey can be an interesting field activity which has direct bearing on the curriculum of Economics, Commerce, Statistics, Psychology, Home Science etc. The report of such a survey will provide up-to-date information about the problems and potentials of the village and help in programme planning for village development. The

applied field work will help the students to increase their analytical ability and deepen their thinking. Further, this will help them to identify the problems which have been left unnoticed. The survey work can also be accomplished with the help of Participatory Rural Appraisal exercises.

Identification of Problem(s)

It is on the basis of this need assessment that projects/programmes are to be formulated. The programme officers should use their discretion and should identify the projects which can be completed by seeking assistance from the communities/other agencies.

As the aim of adoption of village or area is to give new ideas of development to the villagers which would improve their living conditions. Once the trust of the communities is won, they start cooperating with the NSS volunteers and approach them for solution of their problems. One of the important services that can be rendered by NSS volunteers is disseminating information about the latest developments in agriculture, watershed management, wastelands development, non-conventional energy, low cost housing, sanitation, nutrition and personal hygiene, schemes for skill development, income generation, government schemes, legal aid, consumer protection and allied field. A liaison between government and other development agencies like Banks, IRDP, ICDS, DWCRA, JRY etc. can also be made.

The Programme Officers (PO) should motivate the communities to involve themselves with NSS for the community development work undertaken by the NSS unit. Further he or she will have to seek the help of various government departments and agencies for technical advice and financial assistance. Therefore, he/she must establish lathes good rapport with the government officials and development agencies. For this, it is better if the administration is taken into confidence by prior consultations.

Completion of Projects

As already stated, the Programme Officer must select the projects very carefully as the image of NSS depends upon the successful completion of such projects. Successful completion of the projects can win appreciation and credit of the community.

Evaluation of Project

Every project should be evaluated after its completion by involving members of the community, Government officials and Panchayat officials. The NSS unit should learn from the lapses in the execution of the project and plan for the next project keeping in view the bottlenecks and constraints faced by them during the earlier project.

2. Adoption of Slums : Most of the Universities and Educational Institutes are usually located in the urban areas.

Survey of the Slum

For adoption of a slum, there should be composite survey team consisting of students drawn from faculties like, Arts, Science, Engineering, Home Science and Social Work etc. The selected areas should be compact and should be easily accessible for students. Areas with acute political conflicts may be avoided.

The issues pertaining to the identification of problems, project planning, interaction and coordination with the various departmental agencies, execution and completion of projects shall be undertaken on the same basis/lines as discussed earlier in the part 'Adoption of Villages'. The progress of projects should also be reviewed frequently.

Services in Slums

The slum, tenements can be adopted by the NSS units with the aim of slum improvement and check its spread. Under this, activities like providing water, water logging, sanitation, electricity, drainage, health and welfare services, life and living conditions, can be undertaken.

NSS Volunteers for Slum Work

Taking into account the living conditions & status of slum dwellers of the slums, only highly motivated, adaptable, mature and skilled students should, be selected for slum development.

Following are the tasks which the students can undertake in slum areas:-

- A. As Community Investigators: They can prepare brief community profile on various slums in the city or town covering different amenities, services, and living conditions etc.
- B. As Community Workers: They can identify local leaders and in cooperation with them discuss local problems on which cooperative action can be initiated.
- C. As Programme Aides: Students can help the local communities' in launching a number of programmes like setting up a free medical camps and free medicines distribution centre, blood donation camps and its awareness, plantation programme, sanitation drive, recreation, health projects like immunization. first aid centre, child care, nutrition classes, etc.
- D. As Community Organizers: NSS students, after establishing rapport with the slum dwellers, can form community association to tackle local problems on a group basis

with reliance on local resources, self help and mutual aid and with some minimum external assistance.

Some suggestions for Selection of slums

- A. There should be a socio-economic survey of the slum by a team of volunteers drawn from different faculties;
- B. The community people should be receptive to the ideas of improving their living standard. They should also be ready to coordinate and involve in the projects undertaken by the NSS for their upliftment;
- C. The areas where political conflicts are likely to arise should be avoided by the NSS units;
- D. The area should be easily accessible to the NSS volunteers to undertake frequent visits to slums;
- E. The working in the slum needs commitment and hard work. Only sensitive and highly motivated NSS volunteers can find easy to serve in slum areas.

3. Coordination with Voluntary Organizations

It may be noted that the NSS unit has no financial resource to implement any programme in the adopted villages or slum on its own. Therefore, a successful unit has to closely coordinate with the government agencies and voluntary organisations working in this field.

After identification of the needs of the community and the selection of projects, the programme officer should look for the Government agency or a Voluntary Organisation who can assist in the completion of a particular project. The different departments of the Government like Forest, Adult Education, Health & Family welfare, can render very useful assistance to the project pertaining to community work. Voluntary organisations can also help in forming public opinion in favour of NSS Projects.

NSS volunteers can be placed with these agencies considering the inherent aptitudes and inclinations of NSS volunteers. NSS volunteers must be told to develop a sense of belonging and respect for the people with whom they are working. Working in close collaboration with these agencies will help the NSS volunteers in understanding the problems of a vulnerable section of the society.

The work opportunities in the welfare institutions may be enumerated as under :-

- A. Adoption of welfare institutions and helping the inmates and staff by arranging outings, fund collection drives, reading and writing letters for those who are unable to do so;
 - B. Propagation of the message of small family norms, health education, small savings drives etc;
 - C. Working for improvement of physical environment;
 - D. Programme of non-formal education and general literacy classes;
 - E. Organization of economic development activities;
 - F. Assisting in the rehabilitation work of the disabled, destitute etc.
- In addition, NSS units and welfare agencies can take up joint community development projects and other programmes of community welfare and awareness depending on the local needs.

The NSS Programme Officers should plan activities in the adopted village or slum in such a way that the leisure time of the NSS volunteers can be utilized in the service of adopted village or slum. Week-end visits to the adopted areas provide suitable opportunities to live with the community and know their problems and make an earnest effort to do something for them. Similarly efforts should be made to follow up the work done in the areas earlier. Such sustained efforts will flower into friendship between the NSS unit and the community. These activities can be arranged through one day camps and frequent visits under regular activities.

MEASURES ADOPTED DURING COVID-19 LOCKDOWN PERIOD BY

SRI VENKATESWARA UNIVERSITY

1. Due to COVID-2019 Pandemic, the Prime Minister issued the Janata Curfew on a Nationwide scale on 22nd March,2020, for the period ranging from 7:00 a.m. to 9:00 p.m. The Government has made an arrangement for strictly enforcing the Janata Curfew at the Local level.
2. The Tirupati was kept under complete lockdown in the sense that no peoples were permitted to enter and exit from the Town. If any unavoidable cases arise, permission were granted by issuing a letter from the District Level Task Force. All the members of the community were informed to put mask while going outside and strictly maintained social distancing as suggested by norms.
3. At the different locations Local Level Task Force Personnel were deputed for duty to maintain lockdown properly and to address any problems faced by the community.
4. Through A.P Grama Sachivalayam Staff Members along with Volunteers, Online Social Media etc. different notifications regarding COVID-19 were informed to the general public.
5. The community was kept under lockdown that no one was allowed to move within the community. In the case of unavoidable circumstances like health problem, supply of essential commodities special permission was provided.
6. Any person(s) or family who were out of shortages of basic essential commodities shall be given at a free of cost by the Local Level Task Force.

Steps taken :

1. **Stock of Essential commodities:** All the whole sale traders, retailers and petty traders in the community have been informed to maintain stock of essential commodities like rice, potatoes, eggs, onion, tomato, cabbage, green leafy vegetables, dal, edible oil, and other goods. They were also informed to avoid unnecessary hiking of commodity prices due to hoarding. The Task force has also maintained stock essential commodities.
2. **Home Delivery System:** The Local Level Task Force has provided essential commodities to the families and needy people in form of Home Delivery at their doorstep at the price equal to the Pre-COVID market price. Home delivery system was adopted mainly in order to have social distance in the community.
3. **Chain of Duty:** Since 23rd March, 2020, a chain of duty was arranged at various places and streets in the locality in the manner of 24 hrs duty chain. Police personnel were also deployed to discharge duty. Janata Curfew, 22nd March was strictly observed.
4. **Reduction of Pollution:** As the 24 hrs Lockdown was implemented, the movement of vehicle was restricted, except goods carrying vehicles, the unwanted gases emitted from the vehicle were drastically reduced.

5. **Restriction of movement:** During the Lockdown 1 and Lockdown 2, the Local Level Task force enforced complete lockdown within the community and was relaxed to partial lockdown during the lockdown 3. Information were disseminated to the public through Public Address system and other means of social electronic media.
6. **Maintaining of Home Quarantine:** Home Quarantine was implemented Strictly in our Tirupati area. Before undertaking home quarantine, all the home quarantine facilities were strictly inspected with the help of voluntary medical personnel.
 - a) The time of opening shops were restricted on specified time, i.e. Morning : 6:00 a.m. – 9:00 a.m. and Afternoon : 3:00 p.m. – 6:00 p.m. All the customers were maintained social distancing in buying goods from the shops by tracing a circle spot on the road. All the shop owners were informed to maintain normal price and strictly informed not fixed abnormal price of their commodities due to hoarding.
 - b) Inflows of essential commodities form outside District were restricted and those who wanted to carry from outside shall sought prior permission from the District Level Task Force.
 - c) All gathering in any forms are strictly prohibited at the community level.
 - d) Strangers stranded in the District shall have to remain in the District.
 - e) All houses in the District were sprayed by Hydrochlorine solution.
 - f) House to house survey were conducted in order to know difficulties faced like shortages of essential commodities etc.
 - g) Members of District stranded in other states and abroad were informed to follow government instructions as notified from time to time.
 - h) If any problems faces by the households or arises within the community, the District Level Local Task Force may resolved through executive meetings.
 - i) If deceased occurred in the community, the task force have handled the deceased body as per the Standard Operating Procedures (SOP) issued by the government.

SVU Activities during COVID - 19 Pandemic :

Worked as a Scientist – ICMR – VDRL Lab During Covid-19 and tested Free Government samples of Tirupati, Chittoor, Kadapa and Nellore Districts of SARS Variants and Delta Variants viral RT-PCR samples and received dedication and appreciation award from different organizations (worked for 18 hrs per day)



LAB Environment



Sample Collection



LAMINAR AIR FLOW CHAMBER



LAB ANALYSIS



EXTRACTION PROCEDURE

CERTIFICATES RECEIVED FOR THE CONTRIBUTION BY DR.KUTAGOLLA PEERA IN COVID-19

Date :- 25 , June 2020

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**Certificate
Of Dedication**
This Certificate Is Awarded To
Dr.Kutagolla Peera(Scientist covid-19)

Has Served Awareness Program of COVID-19. He/She made a effort of best practices on prevention of Coronavirus Disease as specified by **World Health Organization (WHO)**. He/She Has Dedicated to Promote "Safety Against COVID-19 Awareness Program His/Her Services Appreciated by all.
We Wish Him/Her to all success in future.

www.covid19.worldrecordsbiennale.com

STAYS SAFE. STAY HOME. SAVE LIVES. COVID-19 RESPONSE

1 CRORE ONLINE PLEDGE ATTEMPT WORLDWIDE

SPREADING KINDNESS DIGITALLY

ASSIST WORLD RECORDS
RESEARCH FOUNDATION

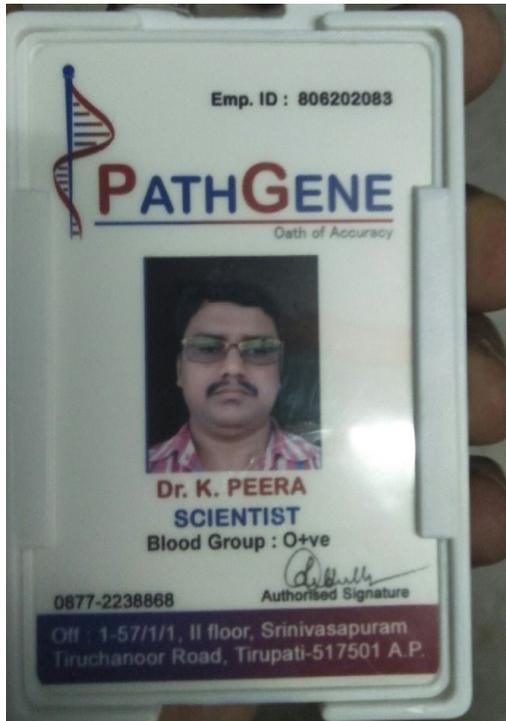
CERTIFICATE OF KINDNESS
This is to certify
DR.KUTAGOLLA PEERA
Tirupati, Andhra Pradesh, India

in accordance with regulations and commitment to promote safety against COVID- 19. In supporting this cause, in the prevention of Corona Virus, as initiated by (WHO) World Health Organization . He / She participating in the Era of Campaign known as "Spreading Kindness Digitally" This Persisting kindness should prolong and sustain throughout the scenario of his /her life (Post Lock Down) spread the kindness chain of positivity to one and all .

Issued on: July 18th 2020 Certificate no: 10046372

Dr. R. Rajendran, Founder
World Records Biennale Foundation,
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