ENVIRONMENT, GREEN AND ENERGY AUDIT

SANGOLA TALUKA SHETKARI SHIKSHAN PRASARAK MANDAL SANGOLA'S,

DR. GANPATRAO DESHMUKH MAHAVIDYALA

SANGOLA (ARTS & SCIENCE)

Prepared By

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सोलापूर विद्यापीठ
॥ विद्यया संपन्नता ॥

DEPARTMENTOF ENVIRONMENTAL SCIENCE,

SCHOOL OF EARTH SCIENCES,

PUNYASHLOK AHILYADEVI HOLKAR, SOLAPUR UNIVERSITY

SOLAPUR MAHARASHTRA, INDIA

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CERTIFICATE

ENVIRONMENT, GREEN AND ENERGY AUDIT CERTIFICATE

Academic Year 2021 to 2024

This is to certify that, **Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola's, Dr. Ganpatrao Deshmukh Mahavidyalaya Sangola [Arts and Science], Tal- Sangola, Dist- Solapur** has taking and implementing respectable initiatives for conservation and protection of Environment.

We, Department of Environmental Science, School of Earth Sciences, PAH Solapur University have satisfactory and successfully completed the Environment, Green and Energy Audit Consultancy work based on the continuous site visits, observations, laboratory work and information provided by college from the Academic Year 2021-22, 2022-23 and 2023-24 with support of data provided by Principal, IQAC Coordinator, NSS Coordinator, Criteria Coordinators, Concerned Teachers, Heads of Department, staff of Dr. Ganpatrao Deshmukh Mahavidyalaya Sangola [Arts and Science], Tal- Sangola, Dist- Solapur (Maharashtra State).

Dr. Vinayak P. Dhulap
Head & Asst. Professor,
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ACKNOWLEDGEMENT

Environmental and Green Audit Assessment Team thanks to the Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola's, Dr.Ganpatrao Deshmukh Mahavidyalaya Sangola [Arts and Science] Prin. Dr.S.M.Mulani for assigning this important work. We appreciate the cooperation extended to our audit team during the entire process.

I would like to express my sincere gratitude to Hon'ble Vice Chancellor Prof. Prakash Mahanavar, Hon'ble Pro-Vice Chancellor Prof. Laxmikant Dama, Registrar Smt. Yogini Ghare for giving official permission during environmental and green audit consultancy work.

Our special thanks to Dr. Dhasade S.S. NAAC – IQAC Coordinator, Mr. Shinde V.S., Mr. Khatakale D. R. Member of Management, Criteria Coordinators, and student representatives.

Also, I am thankful to Heads of Department, various Centre Heads, Coordinators, and other official staff members of the college who were actively involved while collecting the data and supported us during field measurements and report writing.

I thanks to all participants of the auditing team especially to Dr. J.V. Thomabre NSS and College Environmental and Green Audit Coordinator and also our Research Students of Dept. of Environmental Science, P.A.H. Solapur University Solapur for giving necessary inputs to carry out this veryvital exercise of Energy, Environment and Green Audit.

At the last, I sincerely thank to all the people who involved directly orindirectly and their significant contribution to execute this Environment, Green and Energy, Environment Audit Report.

Thank you!!

Dr. Vinayak P. Dhulap

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1. INTRODUCTION

1.1 Environment and Green Audit:

The Environment and green audit is the systematic process of all environmental practices such as identification, quantification, recording, reporting and analysis of the environmental parameters which are within and outside of the college/university. It shows the present environmental status of the institute. The environmental parameters which will have an impact on college campus environment is recorded and discussed. This audit is an important means for a college to determine the available sustainable sources, consumable energy / water resources or other resources; then college can consider how to implement recommendations that make college environmentally sound. It was initiated with the aim of inspecting and identifying the cause that threat to the health of campus environment including air, water and noise. This environment and green audit create health consciousness, environmental awareness, sustainability, valuesand ethics of nature. The audit provides better understanding of green impact on all stakeholders. College has conducted a green audit with specific goals such as:

1. Identification of green practices implemented by college
2. Identify positive and negative issues in green practices.
3. Analyze and suggest possible eco-solution for problems that are identified.
4. Assess capability of different types of waste management.
5. Increase environmental awareness/ initiatives throughout campus.
6. Identify, assess and report the environmental risks.
7. Motivates and recommendations to staff for sustainable use of available resources.
8. The long-term goal of environmental and green audit is to collect baseline data of environmental parameters (Water, sound, air) and resolve environmental issue before they become problem.

Thus, college identifies its own environmental concerns, initiatives and sustainability actions. So, this environment and green audit is assigned to the criteria 7 of NAAC under best practices. National Assessment and Accreditation Council (NAAC) which is a self-governing organization of India which declare the institutions as Grade A, B or C according to the scores assigned during the accreditation.

The Environment, Green and Energy audits are based on the major environmental acts / policies of India which are applicable to educational institutions, international norms & environmental best practices. We follow following acts & related regulations/policies:

- *The Environment (Protection)Act,1986*
- *Water (Prevention and Control of Pollution) Act,1974*
- *Air (Prevention and Control of Pollution) Act,1981*

- *Energy ConservationAct,2001*
- *Hazardous Waste Management Rules-2016*
- *The Forest (Conservation)Act,1980*
- *The Wildlife Protection Act,1972*
- *The Indian Forest Act,1927*
- *The biological Diversity Act 2002etc.*

1.2 Environmental and Green Audit Process:

A Green Campus is a place where environmentally sound practices and education both leads to fulfill sustainability goals of the college. This green audit provides to take the necessary steps for the environmental protection and its conservation. It helps to assess the current status of environment and develops new paradigms by creatingsustainable solutions to problem faced by mankind. Environmental and Green audit aims to study and present status of air, water and wastewater, soil, noise level. Waste such as solid waste, hazardous waste is analyzed and its management strategies are discussed accordingly. Biodiversity including flora and fauna, its conservation in the college premises is studied within as well as at the college surrounding area.

Green Audits highlights on the total vegetation cover in the college campus area. The vegetation report in which it includes types of vegetation, scientific details flora and fauna, list of indigenous and exotic (non-native) floral species etc. This Green audit includes energy needs of the college assessing its total energy requirement, production, and types of energy,energy losses and its sustainable usage that can be implemented by the College Management.

The main goal of audit is to help college / institution to give environmental concerns through systematic environmental management approach. It helps to improve environmental standards set by college/institute. It would help to protect the environment of college campus in and around the campus. It strengthens the organization to build a better environmental framework for its better performance. From this report, institution can understandwhether performing environment or green audit is a good idea for their institution. Theaudit assesses air quality, water quality, solid waste andsoil health. These audits shall also be help to development social and environmental responsibility for the College campus. It supports to theoverall institutional development through green policy document. This audit data can be used to improve the college to become eco-friendly and sustainable.

During an environmental and green audit environment experts followed following steps:

- ✓ Review present status and record baseline data
- ✓ Analyze the air, water, soil, Sound levels
- ✓ Review potential of water, air and sound level
- ✓ Observe and examine waste production and its management

- ✓ Reporting of the all data
- ✓ Recommendations for Environmental Awareness

1.3 About College:

The Institution, Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola, was established in 23-Sep-1991,with the aim of giving availability and facility of education to socially backward society, to Bahujan society including Harijan, Girijan, farmers, labours and socially deprived from progress in the region of sangola taluka since it's establishment, the sansthas has started high school department, professional courses of +2 section and Dr. Ganpatrao Deshmukh Mahavidyalaya Sangola etc. Dr. Ganpatrao Deshmukh Mahavidyalaya Sangola was established 23rd September 1991. There is the facility of B.C. S, B.C. A (degree courses), B.Sc. (comp) & M.Sc education in the college. The college has started M.A (English) course from the year 2004 & M.Sc (comp science) from 2009 from 2012 since its establishment the college has been progressing ahead and has now become an important academic centre in the region of Sangola taluka the college is accredited by NAAC with Grade "B" in the year 2004 Along with an intellectual & all round development of students, to develop their academic carrier , there are various departments under Arts & Science College faculties During the last year the no. of students in this college were 1600 . The big building of the college, with its large playground, is nearby S.T stand.

Vision

To provide quality higher education to the students from socio-economically background and the poor family, and friendly atmosphere for teaching, learning and research process. to shape the students in becoming globally competent, skilled and socially oriented human power.

Mission of the institution

1. To provide the facilities of education to the students who are from economically weaker section of the society from deprived lot.
2. To make the students aware of human ethics, culture and heritage.
3. To create the better manpower for the nation.

Aims and objectives of the institution

1. To open the schools & college in order to give primary, secondary, higher secondary, vocational, technical education and also higher and professional education to the students especially from the rural area.
2. To open the Montessori's, laboratories, technical training centres, libraries and hostel for boys and girls, in order to help them to complete education, upbringing them in the main stream of society and to create an interest and awareness about education.
3. 3.To provide them scholarships & other facilities in order to develop all round personality of students and to develop their mental, physical health and environment among students.

4. To give the guidance & information to students to people from rural area by the experts from academic, social, political, cultural, agriculture and economic fields.
5. To create volunteers and social workers and to train them in order to develop the rural area in all fields.
6. This institution does not believe in any religion, caste and discrimination all students from any caste are admitted in the college, especially students from reserve category are admitted with priority.
7. This is non-political institution

Goals of the institution

1. To help the government to broaden view of higher education.
2. Knowledge based development.
3. Inclusive growth for socio-economic changes and sustainable development.

Infrastructure available in the college

The college has formulated a building committee to advise augmentation, and upgradation of infrastructure and to create an environment of excellence in education through new and innovative educational tools. At the beginning of the academic year, the head of the department suggests the requirements of equipment based on course contents and the upgradation of the equipment. The college has adequate space for academic, administrative, and sports activities. The college has sixteen classrooms and sixteen science laboratories, including five computer laboratories with ICT and three smart classrooms. The College has separate placement cells, NCC, NSS, IQAC, canteen, staffrooms, Parking zone, and washroom blocks. The entire campus is under CCTV surveillance and the security guards are appointed to serve safety and security purposes. The college has two hundred forty-three computers to maintain the computer-student ratio. The availability and requirements regarding classrooms laboratories, other equipment, and furniture are planned by the timetable committee. The faculty members are encouraged to use innovative teaching-learning practices such as PPTs, LCD projectors, DLPs, smart boards, etc. With the utilization of modern technology, some of the departments of the college arrange workshops and national and international conferences. The maintenance of the equipment and utilization of infrastructure is ensured through the appointment of an experienced lab technician. Beyond the regular college hours, the physical infrastructure is utilized to conduct cocurricular activities, parent-teacher meetings, alumni meetings, campus recruitment drives, competitive classes, etc.

1.4 Location:

Fig. 1: Location: College Satellite Google Earth Map

Source: Google Earth

The college of Dr. Ganpatrao Deshmukh Mahavidyalaya Sangola [Arts and Science], Tal-Sangola, Dist- Solapur located at center of the city Sangola opposite to Sangola Central Bus Stand and Sangola Railway Station Road. The college is located in the tahsil area i.e. Sangola City Dist - Solapur. This college is mainly geographically located at latitude 17.4326250 and longitude 75.1874280 Elevation 504m / 1654feet and Barometric Pressure is about 95Kpa.

Fig.2: College Location and Road Networks maps

Source: Google Earth

Table 1: College Environment and Green Audit Team

Sr. No	Name of the auditor	Area of Expertise
Dr. Ganpatrao Deshmukh Mahavidyalaya Sangola [Arts and Science], Tal- Sangola, Dist- Solapur		
1	Prin.Dr. S.M..Mulani	Principal
2	Dr. S.S.Dhasade	IQAC-NAAC-Coordinator
3	Dr.J.V.Thombare	NSS Coordinator
4	Dr. M.B.Waghmode	College Environment Committee
PAH Solapur University–Team		
1	Dr. Vinayak P. Dhulap Head, Dept. of Environmental Science & Environmental Consultant	Environmental Science - Water Quality, Air Quality, Noise, Biodiversity, Env. Education, Flora and Fauna expert, Geospatial technology
2.	Mr. Pankaj Sutkar (Research Student)	Environmental pollution, Solid waste, environmental microbiology

Fig.3: Environment and Green Audit Discussion with member of management and with Principal Dr. Mulani S.M


GPS Map Camera
Sangola, Maharashtra, India
C5MP+6XF, Station Rd, Sangola, Maharashtra 413307, India
Lat 17.432903°
Long 75.187059°
15/03/24 11:51 AM GMT +05:30
Google

1.5 College Environment Policy:

Dr. Ganpatrao Deshmukh Mahavidyalaya Sangola has prepared its own environmental policy for effective implementation of green initiatives that has taken by college. This Green policy prepared by college environment department staff for the environment consciousness and awareness. This green policy is the guideline for the Management, staff and all the students.

a. Policy Statement:

Dr. Ganpatrao Deshmukh Mahavidyalaya Sangola has designed "Environmental (Solid Waste management), Pollution Management (Air, Water, Sound) and Green Policy" to conserve college campus environment and provide environmentally friendly teaching learning to the students and stakeholders.

b. Policy Objectives:

The main purpose of the policy is identification and recording of environmental concerns of the college and to create healthy teaching learning environment by implementing the recommendations given through committee.

Followings are the objectives of the Environment (Waste management) policy:

1. To make aware students and introduce to real concerns of college and surrounding environment and its sustainability.
2. To protect the environment and minimize the threats posed to human health.
3. To analyze the pattern of waste impacts on environment and extent of resource use on the campus.
4. To create a baseline data to review sustainability by avoiding the interruptions in environment.
5. To minimize the waste generated from all sources (Direct/ Indirect)
6. To reuse, recycle the maximum waste and improve the waste management activities.
7. To recycle organic or biodegradable waste that can be converted for composting process and used in campus botanical garden and plantation.
8. To avoid the hazardous waste impacts on the human health and the environment.
9. To promote the online based work and paperless work for reduction the use of paper.
10. To create Environmental awareness through its Slogans on the campus walls and bulletins information on notice boards.

Table 2: College Environmental Committee

Sr. No.	Name	Designation
1.	Prin.Dr. S.M..Mulani	Chairman
2.	Dr. S.S.Dhasade	Member
3.	Dr.J.V.Thombare	Member
4.	College Management Trustee (One)	Member
5.	Non-Teaching Staff (One)	Member
6.	College Student Representative–CR (Boy/Girl)	Member
7.	Dr. M.B.Waghmode (Environment)	Member Coordinator

1.6 Aim and objectives of college:

Dr. Ganpatrao Deshmukh Mahavidyalaya Sangola is trying to become a self-sustainable in the areas of air, noise, water and waste management. The college aims to introduce environmental awareness in the students through education and the programmes.

The stakeholders of college have to contribute collectively to develop a Sustainable and Green -Clean Campus to achieve the green goals. The college focuses on the use of eco-friendly products & sustainable ways in the college campus, laboratories and wherever is possible.

1. Information and education to the students about environmental issues at local, state, national and international level.
2. Reduction of possible pollutant emissions from its sources to improve environmental performance of college.
3. Use of organic manure, cow dung and vermin-compost for the cultivation of plants
4. To avoid non-degradable and single-use disposable plastic items, plastic products.

To achieve green and sustainable goals following are the objectives which has to be follow by the college:

Climate Change and Energy Conservation:

1. Right action taken to avoid the energy use from non-renewable sorce, reduce greenhouse gas emissions and promote the solar energy lamps / sensor-based lamps wherever possible in the college campus.
2. Steps taken to reduce the waste generation and the Greenhouse Gas (GHG) emissions.
3. Use of energy saving equipment in college campus and in laboratories / classrooms/ corridors and promoting energy use from the renewable source of energy such as solar/wind.
4. On a regular basis monitoring and maintaining the fuel based and electric vehicles information in the college. Recording the information based on its fuel efficiency/hybrid/battery operated vehicles.

5. Promoting teaching, non-teaching staff and all students for the use of public transport and electric based transport.
6. Promote to use of renewable energy source i.e. Solar Energy based lamps and the energy generation equipment's.
7. Develop Enviro- inventory which based on the sustainable solutions and guides which is useful for everyone.
8. Creating environmental awareness by organizing environmental days, student activities, and debates, seminars which are related to environmental issues such as climate change, environmental pollution and protection, waste management.
9. Promoting scientific projects and research based experiments in the college education as a part of regular curriculum.
10. Encourage students to organize and associate to conduct environmental programmes and Eco-Savers/ Green Saviors etc. so as to maximize the student's involvement for the awareness.
11. MoU may be signed with Government / non-Governmental Organizations (NGOs) for nature protection and conservation.

Water and waste water Management:

Adopting following measures in campus to reduce water pollution and control on more water consumption.

1. To decrease the water usage and avoid overuse of water in the toilets, bathrooms, college canteen are as etc. Reuse of water is recommended.
2. To control the grey and drain water by proper management for its reuse.
3. To set rainwater harvesting equipment's in the college building and wherever possible to conserve water.
4. Improving the drinking water / RO water / Bore well water quality through the regular analysis of Physico-chemical properties of water.
5. Use and Implementation of advanced methods for watering plantations such as Sprinkler irrigation and Drip irrigation. Use of water metering for usage monitoring of water, IoT based watering, water device alerts for water management.
6. To use sensor based water tabs for the minimize wastage of water.
7. To construct and use waste water treatment plant (WTP) for sewage came from college bathrooms, toilets and runoff produced. Treatment water can be reused for the plant watering and flushing purposes.
8. Use of recycled waste water in the college gardening purposes and sports ground.

9. To regularly display water management directions/ alerts at necessary locations in the college campus.

Waste Management:

1. To follow the proper methods for onsite waste segregation generated from the college and take suitable actions to decrease municipal waste in the campus.
2. To manage, collect solid waste/ e-waste generated from the departments of college and dispose them according to Central Pollution Control Board (CPCB), India.
3. Actions taken to minimize use of plastic and its types products in college campus and promoting the plastic free campus.
4. To adopt "Plastic free Campus" in the college and implementation of total ban on plastic products.
5. To encourage paper less work culture for the official work in the college to avoid use of papers.
6. To adopt Reduce, Reuse and Recycle i.e. 3R method for solid waste management.
7. To display environmental instructions /Slogans /notices /alerts at prominent / relevant locations in the college campus.

Green Cover-Clean Campus:

1. To promote the plantation activity by staff, students so adding green cover in and around the college campus area.
2. Establishment of Green campus in the college objectives as per 'Green and Environment Policy', 'Indian Biodiversity Act' and 'Wildlife Protection Act' of the MOEF (Ministry of Environment, Forests and Climate Change, New Delhi) and it should follow Indian Green Building Council concepts.
3. Adopt indigenous or local plants in the college and surrounding to promote the bio-diversity.
4. Scientific naming to all plants in the college area which will provide botanical details and the medicinal value.
5. Establishment of college terrace garden, herbal garden, kitchen, rock- ornamental gardens, etc. for enhancing environmental teaching and learning process.
6. Increase the green cover using plant types such as climbers, creepers, bushy hanging plants which will maintain normal temperature in the college campus.
7. Adopt plant pots and plants donation policy from the student and staff under college environmental committee/ Green Committee to promote use of plants pots in the corridors, open space.
8. Display environmentally friendly slogans on plants, greenery etc. in the college campus area.

Air and Noise Management:

College located at center of tehsil, so it is important to create more awareness regarding air and noise pollution through programmes/ activities.

1. Following the strict college rules for the students who can aggregate the noise in college area. Poster indicating “No Honking”, “No Horns”, “Horns Prohibited” can be displayed on prominent locations in the college.
2. Creation of silence zones in the college campus where honking, large horns is completely prohibited.
3. Instruct to college non-teaching staff or students to complete ban on open burning of waste papers, garbage, and plant mass or garden waste in the college campus.
4. Recording and Documentation of the number of oxygen producing and carbon dioxide absorbing plants planted in the college campus to provide healthier and fresh air environment to all.
5. Promote for more plantation and increase greenery in the college and surrounding to control of dust pollution and noise pollution.
6. Use of sound acoustics / absorbing materials in the college campus to control its level.

Fig.4: Instruct to all stakeholders through Signs and Slogans

Source: Google-Govt. of India – Official website

Table 3: Brief information of college

Sr. No	Particulars	Information/data
1	Name of college	Dr Ganpatrao Deshmukh Mahavidyalaya Sangola (Former name Vidnyan Mahavidylaya Sangola)
2	Faculty (Arts/commerce/science)	Arts and science
3	Number Student	2025
4	Boys	1089
5	Girls	936
6	Location	Near ST stand Vasud Road Sangola
7	Area in acre/Sq. m/ha	3.5 acre
8	Layout along with area statement	Attached
9	Principle of college	Dr. Sikandar Musa Mulani
10	Administrative officer	Shamrao Bhavan Thombare
11	Person responsible for Environment activities	Dr. Suryavanshi Rajendra Shankar
12	Contact Number	9423560945
13	Email	vidnyanms@yahoo.co.in
14	Fax	
15	Website	https://vmssangola.org/

1.7 College Glimpses:

Fig. 5: College Main Entrance

Fig. 6: College Campus Greenery

Fig. 7: College Main Building

Fig. 8: College Main Building Greenery


GPS Map Camera
Sangola, Maharashtra, India
C5JQ+X5G Vidnyan Mahavidyalaya, Sangola, Maharashtra 413307, India
Lat 17.432373°
Long 75.187799°
15/03/24 01:14 PM GMT +05:30
Google

Fig. 9: College Campus Green Parking stand for Bicycle and motorcycle

Fig. 10: Study Room

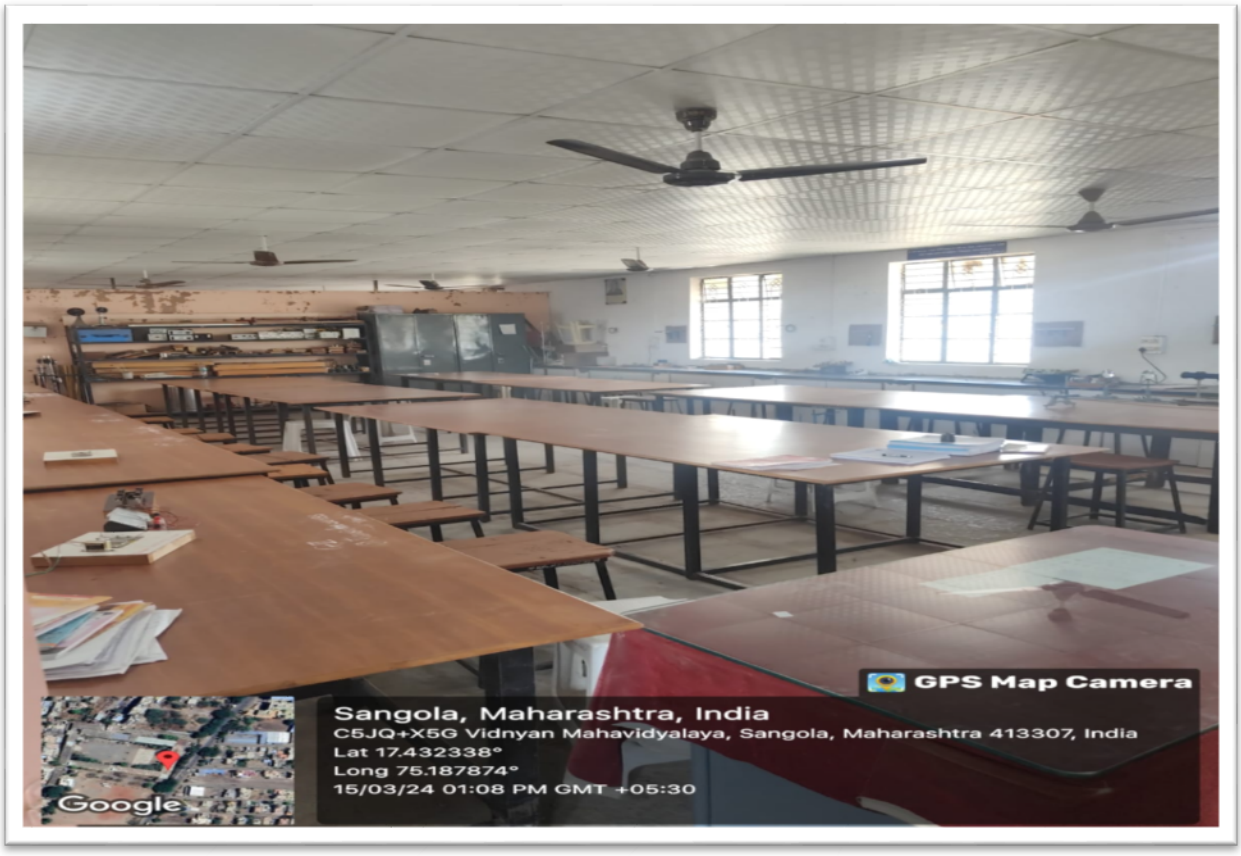


Fig 11: RO water purifier

Fig.12: Banners with impact able slogans

Fig.12: Gas chamber

Fig.13: Safety precautions by college

Fig.14: Botanical garden

Fig.15: Solar panels on college building roof

Fig.16: Noise monitoring in the college campus

Fig. 17: Slogans spreading awareness related NO SMOKING

Fig 18: Clean corridors

1.8 Environment and Green Audit Objectives

The main objective of the Environmental and Green audit is to promote the environmental sustainable management in order to maintain eco-friendly campus. The purpose of the green audit is to identify record, analyze, quantify, describe and give guidelines to the stakeholders/ management for the applicable regulations, policies and standards.

The objectives of carrying out Environment and Green Audit are:

1. To map the Geographical Location of the college.
2. To assess Water quality, its Physico-chemical properties, consumption and its management.
3. To document the solid waste management (SWM) of the college.
4. To estimate the total energy requirements and promote the renewable energy alternatives.
5. To Maintain Biodiversity status of the campus and Green Area Management.
6. To document the ambient environmental condition of water, air, sound.
7. To introduce and aware students to real concern of environmental pollution and issues.
8. To document the floral and faunal diversity of the college.

1.9 Methodology

In order to conduct the Environmental and Green audit, the methodology included different tools such as

1. Preparation a set of questionnaire for Air, Water, Waste, Energy, Biodiversity etc.
2. Observation and record of data regarding environmental parameters in the given formats.
3. Collection of data through primary and secondary methods.
4. Physical checking of the college campus –includes visit to college campus, Departments, office, classrooms, laboratories, library, sports grounds and surrounding area.
5. Observation and review of the data and preparation of draft documentation.
6. Interactions/interview of key persons of college regarding environmental concerns, data analysis, measurements and recommendations.

The Green audit covered the following areas to summarize the present status of environment in the college which is given below:

1. Green campus management
2. Solid waste management
3. Energy Conservation
4. Air, Water, Sound Management
5. E-waste management
6. Biodiversity conservation

1.10 Observations

Major Green and Environmental Initiatives of the college

1. College has organized a guest lecture to students regarding climate change and environmental pollution issues.
2. NCC and NSS volunteers and other students were arranged various green and environmental awareness activities and helped college for implementation of environmental programmes and regarding workshops.
3. Environmental awareness programmes and Social activities such as tree plantation, bird watching, nest making, blood donation, cycle rally to promote use of cycles are arranged by college.
4. Organized a guest lectures and plantation in the campus on the basis of World Environment Day.
5. No plastic, No Tobacco campaign and slogan rally in the tehsil to spread awareness of it among peoples.
6. NSS section arranged workshop on Nadi ko Jano, "Waste to best "to promote Recycle and reuse of waste products from college.
7. NSS Volunteers organized the awareness rally was arranged "Swachh Bharat Abhiyan" of government of India spreading the cleanliness awareness among student and residential in surrounding area.
8. On the occasion of World Environment Day and World Earth day "Tree plantation" programme was organized to students, members of trustees and invited guests.

Fig.19: No vehicle Zone at the college campus and flowering in the campus

2. PLANTATION AND GREEN AREA COVER

The college Botany, Zoology, Geography departments and NSS, NCC units, every year organizes plantation activities drive on the various days and college programs. College planting mostly indigenous species in the college campus. The plantation in college campus increases the quality of life, not only in college campus but also the surrounding area in the form of temperature or heat balance, contributing to improving air quality, soil conservation, surface water runoff conservation, ground water recharge and biodiversity conservation especially habitat for birds and insects, wild animals etc.

Thus, plantation will also help to increases the faunal diversity especially avifauna (Birds) and also maintains food chains and food webs. The beauty of the college campus is due to evergreen trees (Ashoka, Neem, palm Banyan and Tamarind), flowering plants, indoor and outdoor plants, creepers etc. Leaf – covered branches keep many animals, such as birds and squirrels, out of reach of predators. A thick belt of large shady trees in the borders of the college seems to control of ambient noise and controlled dust pollution. Thus, the college has been playing a significant role in maintaining the environment of the entire surrounding area of college and because of this strength, other stakeholders and residential are get benefits through college walking track and sport ground daily.

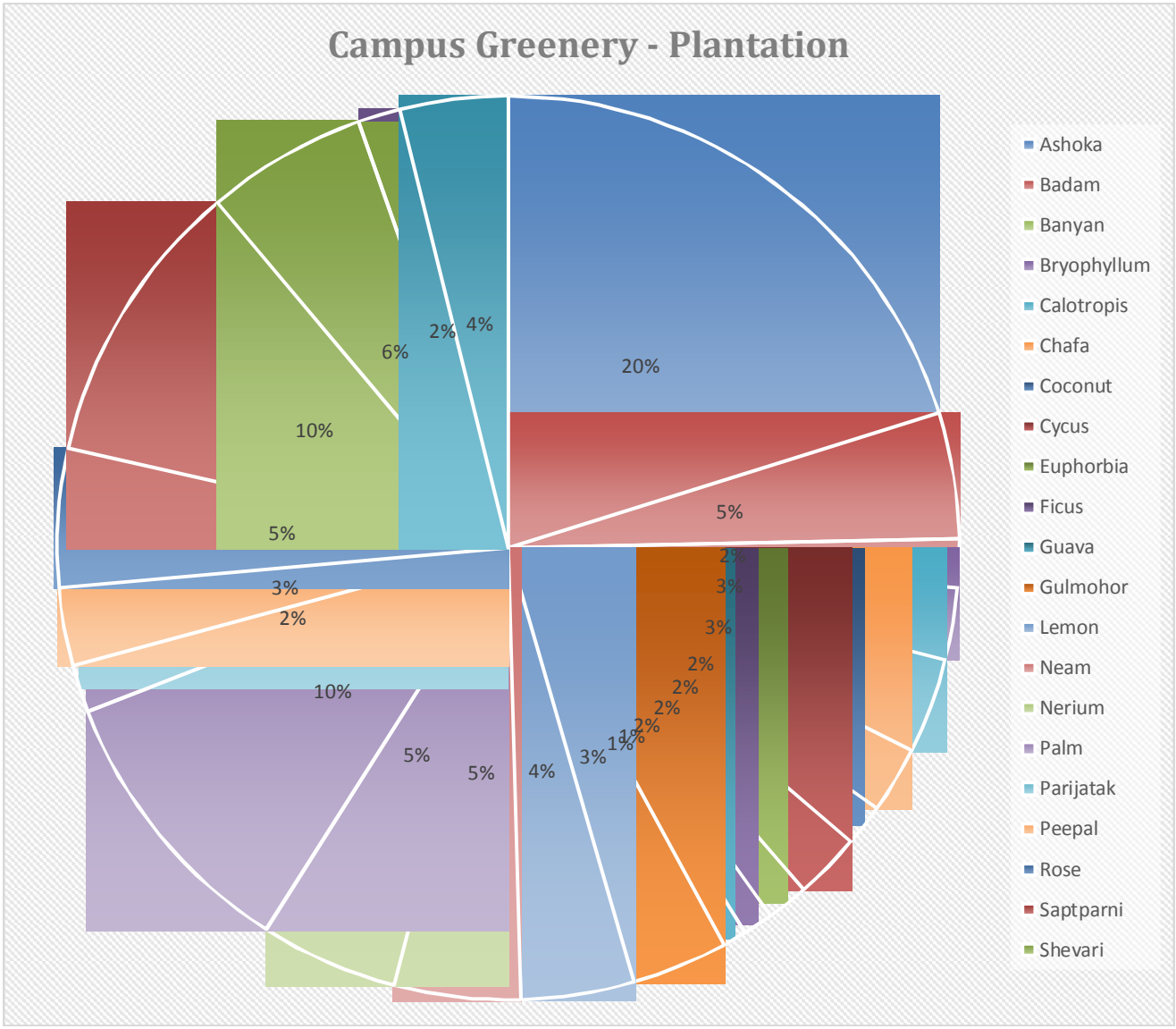
2.1 Plant Diversity

College having separate botanical garden and having total area 4000 sq. ft. includes various generous and species of herb, shrub, trees, bushes, creepers species and also college plant nursery in the same botanical garden. Plant waste is used as organic compost in the same botanical garden. Prof. M.A. Hake is an in charge of this botanical garden. Students, teachers and non-teaching staff spending maximum time to maintain this garden and campus greenery and also created student's nature club for the environmental conservation and plantation. Total 596 plant species include more than 400 tall plants/ trees and 65 small herb and shrub plants and more than 90 flowering plants front side of the building, flowering pots kept in the corridor, offices, class rooms. The compost for garden provided from the college vermicompost pit. College has its own compost pits near to botanical garden.

Table 4: List of common plant species observed in the college campus during the field visit

Local Name	Scientific Name	Number
Ashoka	Sacacaasoca	94
Badam	Terminalracatapa	21
Banyan	Ficusbengalnesis	8
Bryophyllum	Bryophyta	12
Calotropis	Calotripisdrosera	16
Chafa	PlumeriaL	11
Coconut	Cocusnucifera	7
Cycus	Cycusrevoluta	11
Euphorbia	Euphorbia	7
Ficus	Ficusbenzamine	5
Guava	Psidiumguara	4
Gulmohor	Pettophorapetrocarpum	16
Lemon	Citruslemon	19
Neam	Azadirachtaindica	21
Nerium	Neriumolander	23
Palm	Palmaricasantigo	47
Parijatak	NyctanthusL	8
Peepal	Ficusreligeosa	13
Rose	RosaL	23
Saptparni	Alstoniascholaris	48
Shevari	Sesbaniasesban	27
Tamarind	Tamarindusindica	7
Apta	Bahiniaracemosa	18
	Total	**466**

Fig. 20: Campus greenery species wise percentage



2.2 Faunal and other Animal Diversity

On the college campus about 20 common bird species,13 insect species, 04 reptiles, 03 amphibians and 06 mammal's species were observed and recorded commonly by the students and teaching staff of the college department.

Table 5: Avifauna, Insects, Amphibians, Mammals and Reptiles from the college campus

I)Aves (Birds)

Sr. No	Common Name	Scientific Name
1	White Wagtail	Motacillaalba
2	Sunbird	Cinnyrisasiaticus
3	Seven Sisters/Jungle babbler	Argyastriata
4	Rock Dove	Columbalivia
5	Parrot/Parakeet	Psittaculakrameri
6	Laughing Dove	Streptopeliasenegalensis
7	Kingfisher	Alcedoatthis
8	House Sparrow	Passerdomesticus
9	House crow	Corvussplendens
10	Hoppoe	Upupaepops
11	Hawk	Accipiterbadius
12	Green Bee Eater	Meropsorientalis
13	Greater Coucal	Centropussinesis
14	Flycatcher-Shrike	Hemipuspicatus
15	Drongo	Dicrurusmacrocercus
16	Common Myna	Acridotherestristis
17	Brahminy Myna	Sturniapagodarum
18	Brahminy Kite	Haliasturindus
19	Barn Swallow	Hirudorustica
20	Ashy-crowned Sparrow Lark	Eremopterixgriseus

ll) Common Insects observed on the campus

Sr. No.	Common Name	Scientific Name
1	Cockroach	Periplanetaamericana
2	Ants	Solenopsisinvicta
3	Termites	Isoptera
4	Wasp	Vespa
5	Centipede	Scolopendridae
6	Grasshoppers	Omocestusviridulus
7	DragonFly	Aeshnidae
8	Stick Insect	Carousiusmorosus
	Butterflies- i) Common evening brown ii) Plain Tiger butterfly iii) Great egg fly	 *i)* Melanitisleda *ii)* Danauschrysippus *iii)* Hypolimnasbolina
10	Spiders	Parasteatodatepidariorum
11	Honeybee	Apismellifera
12	Moths	Sphingidaeand Manducaquinquemaculata
13	Drosophila	Drosophilamelanogaster

III) Mammals

Sr.No.	Common Name	ScientificName
1	Rat	Rattusrattus
2	Squirrel	Funambuluspalmarum
3	Cat	Feliscatus
4	Dog	Canislupus

2.3 Recommendations:

1. First of almost important suggestion to avoid plantation of exotic plant, trees, creepers, shrubs and grass species in college campus. Promote local or indigenous plants for plantation which can maintain college biodiversity.
2. Promote students for environmental awareness through various curricular areas, independent student research projects, and involve students in the community service. Eg. Nadi ko Jano, Swachh Bharat Mission etc.
3. Selection of plant species on the basis of:
   a. *Economically and environmentally important plant species.*
   b. *Plant species which shows high adaptability to local climatic and edaphic conditions.*
   c. *Plant that enhances the aesthetics of the surrounding areas*
   d. *Plant that serves as nesting, feeding and breeding site for fauna*
   e. *Plants having maximum ability of fixing carbon emission/sequestration*
   f. *Plants species having high fodder and fuel value*
   g. *Plants species having importance in soil binding and water conservation.*
   h. *Celebrate every year 5th June as 'Environment Day', wildlife week and plant trees on this day to make the campus greener.*
   i. *Establish Green library for the students.*
   j. *Prepare five-year planation Programme /Plan in consultation with environment experts, management and students.*

3. WATER MANAGEMENT

Water is very important resource to everyone. Water audit is important to college administration for knowing about over consumption, waste and less consumption in the college campus. This Sangola city having major problem of water scarcity. So need to scientific way management of water and wastewater in the campus. Water auditing is conducted for the Evaluation of facilities of water requirement, sources and facilities for treatment and its reuse.

3.1 Observations

The college mainly uses water for following activities:

- Drinking
- Laboratory
- Canteen
- Cleaning
- Toilets
- Garden

3.2 Water Requirement: The main source of water is Sangola Nagarparishad /Municipal Council irrigation water supply and ground water using bore well. Water requirements calculated based on student strength and staff for the one year.

- Student strength in year 2023-24: 2025
- Teaching and Non-Teaching Staff: 68
- Visitors: Aprox.100

As per NBC 209, BIS, water requirement for the Schools/Educational institutions is for flushing standard is 20 Lts/Head/day and Drinking and Domestic 25 Lts/head per day.

3.3 Without Boarding Facility:

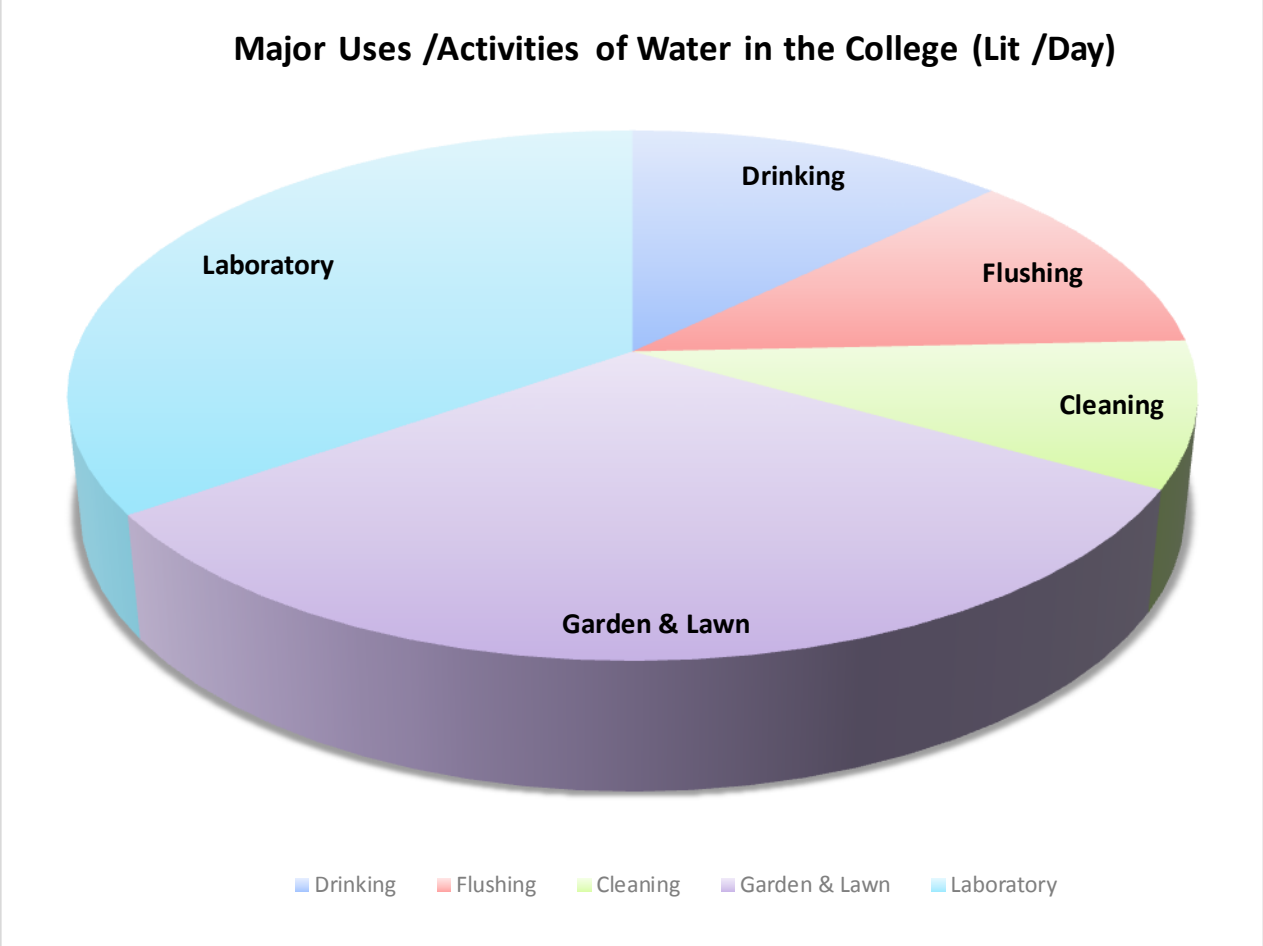
- Drinking:2.7 lit per head per day
- Flushing:1.3 lit per head per day
- The potable water treated with RO which is installed in the college office building.

For the garden or lawn, drip irrigation system installed. The college has installed roof top harvesting systems in the college and the same water stored in the ground as ground water recharge.

Table 6: Major Uses /Activities of Water in the College

S.N.	Activity	Av. Usage Capacity
1	Drinking	1910 lit/day
2	Flushing	1730 lit/day
3	Cleaning	1330 lit/day
4	Garden & Lawn	4800 lit/day
5	Laboratory	5200 lit/day
6	**Total Water**	**14970 lit/day (14.97 KLD)**

Fig. 21: Activity wise water use in college



3.4 Sewage Generation and Treatment:

- About app 9.0 KLD sewage generated and directly discharged in the municipal council sewage line. Others non polluted waste diverted in to plantation, flowering garden and for nursery beds.
- Treatment system: College using septic tank used for the laboratory waste treatment and now the toxic / hazardous waste sending to hazardous waste dumping site for dispose and recovery.

Table 7: Water quality Analysis of college students common water tap

Sr.No	Parameter	Units	Results
Physical Parameters			
1	Turbidity	NTU	0.8
2	TDS	Ppm	69
Chemical parameters			
3	pH	-	7.1
4	Total Hardness	Mg/lit	102
5	Calcium (as Ca)	Mg/lit	32
6	Magnesium (as Mg)	Mg/lit	27
7	Total Alkalinity	Mg/lit	59
8	Sulphate	Mg/lit	11
9	Nitrate	Mg/lit	0.3
10	Chloride	Mg/lit	41

3.5 Rain Water harvesting

- College prepared the rainwater harvesting structures for rainwater harvesting. Also recharged bore well through rainwater harvesting roof top water.
- Development of infrastructure at institutional level to divert rainwater from roof-tops of the buildings or wells on the campus.
- Average quantity of rain water harvesting is about 100000 Lts.

3.6 Recommendation

- In the college campus drip irrigation system should be install and apply in all garden area and plantation area to minimize water wastage.
- Maximum use of sensor based toilet flushing tabs and drinking water tabs and also provided aerators or pressure reducing devices for less wastage of water.
- Need to install sewage treatment plant (STP) and recycle the treated water for flushing and gardening areas in the college campus.
- Cover all building and sport ground areas for the implementation of Rainwater harvesting structures or recharge ground water and store roof top water in tanks for reuse.
- Differentiate of grey and black water and that should be done by the use of dual plumbing line for separation of grey and black water for various application in the campus.
- The ground water level and its quality should be monitored regularly in consultation with Environmental and Water Experts / labs.

4.0 ENERGY MANAGEMENT

The energy is most important resource used in the college campus. This energy used in the form for conventional and non-conventional form. In the energy audit, to know and find out availability & sources of energy, forms of energy, consumption of energy sector wise and overuse as well as wastage of energy in the college campus. The energy audit is the key to systematic approach for decision making in the area of energy conservation and management. This audit attempts to balance the total energy input with its use. This audit would give a positive orientation to the energy cost reduction, prevention, maintenance and quality control programmes. This audit focuses on variations which occur in the energy cost, availability and reliability of supply of energy, decide on appropriate energy mix, energy conservation equipment etc. The main objective of energy audit is to determine ways to reduce energy consumption or lower operating costs.

4.1 Observations:

- Electricity is supplied from Maharashtra State Electrical Board (MSEB).
- Photo solar cell 15 Kwh installed on the college building.
- MSEB Average energy bill monthly of Rs. 47000/- totally reduced by solar energy plant. Now av. Monthly bills of MSEB of Rs. 3000/ to Rs. 4000/-
- College having ample empty and open space and college starts at morning 7:00 am to 3:00 PM. So college used mostly natural sunlight.
- The entire campus including common facility centers are equipped with LED lamps and LED tube lights, except at few locations.
- Energy Awareness and Risks notice boards for Energy saving are displayed in the campus premises.
- Solar Plates are set at the terrace of the college to reduce the energy usage and also supports for the control of building heat.

Table 8: List of ways that college use for Energy

Sr. No	Names of Tools	Amount
1	Fans	60
2	LED Tube lights /Bulbs (15 W)	146
3	LPG	08
4	Computer	199
5	Electrical equipment's Microwave, weight balance etc.	226
6	Air Conditioner	02
7	Photocopier	01
8	Cooling apparatus	02
9	No of street lights	06
10	No of inverters	02
11	No of TV	07
12	Smart Boards	02

Fig. 22: Solar Panels on the College Building Roof

4.2 Recommendations:

- Adjusting the settings and illumination levels to ensure minimum energy used for desired comfort levels.
- Need 6 monthly / yearly or constant energy monitoring about consumption and defining their targets for energy conservation.
- Energy monitoring shall be carried with the help of Energy meters.
- Need to install maximum solar street light lamp at all location in the campus for more generation of energy for the college as well as nearby residential and college can generate economy in the form of energy consultancy services or social services
- Installation of maximum LED lamps instead of CFL and replacing the old tube lights with the new LED tubes in the dark areas.
- Purchase of energy efficient appliances (CFL-FITTINGS) and equipment's for laboratories.
- Need to apply sun screen black /blue colored films on windows to reduce indoor heating of the building rooms.
- Use of compact fluorescent lamps and low voltage lighting.
- Need more awareness on energy conservation and that should be raised among the staff and students.

5.0 WASTE MANAGEMENT

As we know today, waste pollution and its management is a major issue at every place. Similarly, waste management in the college campus is very important part of the green and environmental audit. This waste management criterion supports to college making green and clean campus. The control and reduction of solid waste generation in the college campus, need to take efforts on recycling and reuse of solid waste. Need proper segregation at the source. College has to adopt 3R principle for the waste management. Waste is collected and segregated properly. Students, faculty, and staff are aware and educate on proper waste management practices such as waste source and disposal, plastic waste, paper waste, food waste, and recycling. Solid waste is divided into two categories: dry waste and wet waste

1. Wet waste: bio degradable waste
2. Dry waste: bio degradable and non-biodegradable waste

5.1 Observations

The common waste generated in the college campus are mostly in the class rooms, common halls, laboratories, canteen, sport ground and hostels comprises plant wastes, glass, paper waste, metals, wrappers, plastics, etc. Old newspapers, used papers and journal files, workshop scrap etc. are given for recycling to external agencies (Raddiwala). Glass, metals, plastic and other non-biodegradable wastes are also given to external agencies where they are segregated and disposed/ recycled according to the nature of the waste.

The biodegradable waste comprises leaf litter and food waste are decomposed in the vermi composting unit of college. Similarly, plastic waste managed and sends to the recycling vendor.

Table 9: Details of Waste Generation in the Campus

Waste Particulars	Total Weights Per Day
Generated waste quantity	15 kg. per day (av)
E-waste	Less amount generated and send to vendors
Hazardous waste (toxic) if any	Nil
Wet waste	7 Kg.
Dry waste	5 Kg.
Canteen waste	4 kg.
Glasses	Nil
Garden waste	4 kg
Medical waste if any	Nill
Waste collection facility	Sangola Municipal Council Vehicle
Treatment facility	Vermicompost
Disposal of waste method	Vermicompost
Do you use recycled paper in College	Yes-sending to vendors
Any waste management program organized in The college	yes
Initiative for waste management by college	Yes

5.2 Recommendations

1. Need more awareness on to avid or ban on use of plastics in the college campus.
2. Display awareness sign or messages boards/ slogans boards, messages of solid waste management.
3. Need to reduce the waste generation from students, college staff, departments and offices.
4. Need segregation at the source means in the campus through color code drums separately.
5. Need to segregation of wet and dry waste for recycle uses.
6. Need to segregate hazardous waste which is very less quantity and send whole waste to hazardous site as per State pollution control Board guidelines.
7. Send all recycling waste glass, cans, white, colored and brown paper, plastic bottles, batteries, print cartridges, cardboard and furniture to recycling facility or authorized vendor.

6.0 E–WASTE

Today, E- Waste is becoming a major threat to the whole world. Its toxic emissions mixed with virgin soil and air and caused harmful effects to the entire biota either directly or indirectly. Direct impacts of E-Waste which include release of acids, toxic compounds including heavy metals, carcinogenic chemicals and indirect effects such as bio magnification of heavy metals in the food chain and food webs.

6.1 Observations

- E-waste generated in the college campus is very less in quantity.
- The E-waste and defective item from computer laboratory is being stored properly in stored room and made special committee for sale these items.
- The college management has decided to contact approved E-waste management and disposal facility in order to dispose E-waste in scientific manner.

6.2 Recommendations:

1. Always purchase recycled resources where both are suitable and available.
2. Recycle or safely dispose of computers and electrical equipment's.
3. Use reusable resources and containers and avoid unnecessary packaging where possible.

Fig. 23: Types of E-Waste and its management

7.0 AIR QUALITY

Ambient air quality monitoring was carried out at main gate of college to understand the baseline of

air quality and status of air quality.

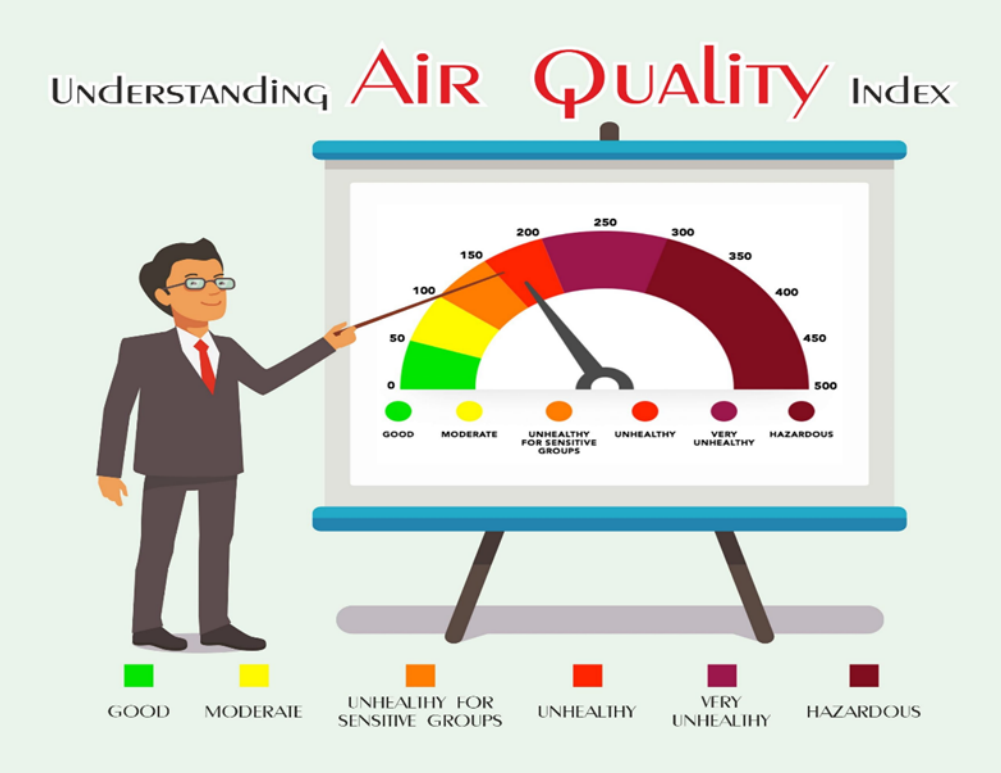
- The concentrations of PM10, PM2.5, samples were collected as 08-hourly average by drawing air at the rate of 1.0 -1.5 m3/min through glass fibre-filter paper and analyzing by the gravimetric method.
- Pre-calibrated fine dust handy particulate samplers were used for monitoring of PM10 and PM2.5.
-

The results are given in the following table

Table 10: Air Quality Status in the College campus

Parameters	Unit	Results (8 Hrs)	NAAQ Standards (24 Hrs)
PM10	µg/m^3	42	100
PM2.5	µg/m^3	29	60

Fig. 24: Air Quality Index Standard



The above results shown the concentrations of PM10 PM2.5, observed within and below the National Ambient Air Quality Standards (NAAQ).

7.1 Noise Level

College is coming under the silence zone, the ambient noise standards are prescribed for residential, commercial and industrial areas and silence zone vide ‘The Noise Pollution (Regulation and control) Rules, 2000, notified by the MoEF& CC on 14th February,2000 and amended thereof.

The ambient noise standards have been stipulated during day time (6 am to 9pm) and night time (9pm to 6am) keeping in the view the different sensitive and the resultant impacts at community level during these periods.

The ambient noise levels were monitored at 2 selected locations within the campus during day and night time. Educational Institute come under silence zones. Equivalent noise levels during day and night, The Noise quality monitoring Station presented in Table below:

Table 11: Noise level in the college campus

SrNo	Location	DAYLeq	NIGHTLeq
ANQ1	College–Main Entrance	**56**	**32**
ANQ2	Near Office	**42**	**28**

Values observed at main gate and near office are well within and bellow the limit of CPCB standards.

8.0 CONCLUSION

Institutional Green and Energy audit is a scientific and specialized approach towards accountability in utilization of natural resources. This audit is a powerful tool to identify the strength and weakness of college in the area of environment and sustainability. This audit is helpful to the college and all the stakeholders for the identifying, evaluating and managing environmental risks and improvement in waste management, pollution control, energy, water management etc.

The outcome of this audit report in each area will be serve as a guide book for educating and creating awareness, consciousness to all stakeholders about environment and supporting to make "Green and Clean Campus". This report is a guide book to the college on the environment related practices and resource usage at the college as well as spawn new activities and innovative practices. The college has taken good initiatives for environmental protection and environmental conservation in the college campus area through environment committee or environmental student's forum. It is seen that this college has done an excellent work in the environmental awareness in the college and among the students. Appreciating various environmental conservation activities carried outby this college in this assessment period. This report will help to making the college "Green and Sustainable".

8.1 Key Observations:

- Review and reevaluated the policy objectives as per requirement.
- Formed College Environment Management Cell / Forum of the college for the college students.
- Prepared environmental conservation activities every year in the academic calendar.
- NCC, NSS, Dept. of Environment, Botany, Zoology and Geography taken major initiatives to organize trainings and workshops to teachers and students on environmental issues and environmental education.
- College has organized many awareness program on the occasion of Great Personalities and as per Environmental Days Calendar for students, teachers and other stakeholder's.
- Implemented 3 R (Reduce Reuse and Recycle) management systems in the college for making green and clean campus.
- College has given major preference to use of natural and renewable energy resources e. g. Solar Energy.

References:

1. *College Annual Reports.*
2. *College Annual Magazines.*
3. *College Environment Committee and NCC & NSS Section activity reports.*
4. *College NSS Section Annual Reports.*
5. *Criteria–VII Green Audit Guidelines-NAAC, Bangalore*
6. *Questionnaire of Green Audit*
7. *College official Website: https://www.vmssangola.org/*
8. *Wastewater, Air, Noise Analysis Methods Manuals–CPCB, New Delhi*
9. *Water Quality Monitoring Methods–American Public Health Association (APHA)23rd Ed.*

----------88888----------

Thank you!!!

Report Prepared by

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Date: 19 March 2022
Ref no: LA/19/03/30

Letter of Appreciation

For

Initiating steps towards water and waste management

As observed during the Audit Process

Awarded to

Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola

Vidnyan Mahavidyalaya Sangola

Taluka Sangola, District Solapur, Pincode 413 307 (Maharashtra)

With reference to the above cited subject we appreciate the efforts of the College in **initiating steps towards water and waste management.**

We hope the College continues similar efforts. As per our observations there is scope for improvement which the college can implement in future.

Best regards,

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Green Audit

2019-20 & 2020-21

AUDIT REPORT

Includes Environment, Energy and Green Audit

Studied for

Sangola Taluka Shetkari

Shikshan Prasarak Mandal Sangola's

Vidnyan Mahavidyalaya Sangola

Taluka Sangola, District Solapur

Pincode 413 307 (Maharashtra)

Analysed by

Greenvio Solutions

27 January 2022

Background reference image Nic Y C Gua on unsplash

Disclaimer

Green Audit Team has prepared this report for **Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola's Vidnyan Mahavidyalaya Sangola** located at *Taluka Sangola, District Solapur, Pincode 413 307 (Maharashtra)* based on input data submitted by the College analysed by the team to the best of their abilities.

The details have been consolidated and thoroughly studied as per the various guidelines for Green Buildings available in National Standards, the report has thereby been generated based on comparative analysis of the existing facilities and the benchmarks. The suggestions derived as a result of the inspection and research as per inputs which would further enhance and develop a Healthy and Sustainable Institution.

These can be implemented phase wise or as a whole warranty or undertaking, express or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

The audit is a thorough study based on the inventory and on-site investigation of data collected over a period of time and should not be used for any legal action. This is the property of Greenvio Solutions and should not be copied.

The Report is prepared by the Team of Greenvio Solutions under their brand and department – Sustainable Academe as Consultancy firm along with Ar. Nahida Shaikh as an Accredited Green Building Professional.

Greenvio Solutions

Developing Healthy and Sustainable Environments

We are an Environmental and Architectural Design Consultancy firm

Sustainable Academe is our department for conducting Audits

Palghar District, Maharashtra- 401208

sustainableacademe@gmail.com

Acknowledgement

Green Audit Assessment Team thanks the **Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola's Vidnyan Mahavidyalaya Sangola** for assigning this important work of Green Audit. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are due to **Hon'ble Mr. Khatkale Ramchandra Shankar,** Acting President; **Mr. Shinde Vitthalrao Sakharam,** Secretary; **Mr. Jankar Babanrao Vitthal,** Director; **Mr. Deshmukh Chandrakant Ganapatrao,** Director; **Dr. Deshmukh Aniket Chandrakant,** Director; **Dr. Shinde Ashokrao Vitthal,** Director; **Mr. Khatkale Dipak Ramchandra,** Director; **Mr. Kumathekar Audhut Chandrakant,** Director; **Mr. Jankar Jayant Babanrao,** Director and everyone from the Management.

Our heartfelt thanks to Principal and Chairman of the entire process **Dr. Raghunath Appa Fule, A/C Principal** for the valuable inputs.

We are also thankful to College's Task force the faculty members who have collected data required for the audit **Dr. Suryavanshi Rajendra Shankar,** Green Audit Coordinator **(Special mention for the excellent co-operation by Madam in entire process);** The Green Audit committee members **Dr. Manoj Waghmode and Dr. Sushilkumar Randive, Dr. Mahadevi Jundale** and the IQAC Co-coordinator **Dr. Dhasade Shankar Sangappa** for the inventory and data collection.

We highly appreciate the assistance of **Mr. S. B. Thomare,** Office superintendent; **Mr. V. B. Gusale,** Lab attendant and **the entire Admin, Teaching and Non-teaching staff** for their support while collecting the data.

Sustainable Academe

Brand of Greenvio Solutions, Palghar District, Maharashtra- 401208

Contents

1. Introduction

1.1 About the Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola

It was established in 23-Sep-1991, with **the aim of giving availability and facility of education to socially backward society,** to Bahujan society including **Harijan, Girijan, farmers, labours and socially deprived**. Receiving immense progress in the region of Sangola Taluka since its establishment, the Sanstha has started High School Department, Professional Courses of 10+2 Section and Vidnyan Mahavidyalay.

The Sanstha and the College have the following aim and objectives:

1. To open the Schools & Colleges in order to give Primary, Secondary, Higher Secondary, Vocational, Technical Education also Higher and Professional Education **to the students especially from the rural area.**
2. To open the Montessori's, laboratories ,technical training centres, libraries and hostel for boys and girls, in order to **help them to complete education, upbringing them in the main stream of society and to create an interest and awareness about education**
3. To provide them scholarships & other facilities in order **to develop all round personality of students and to develop their mental, physical health and environment among students.**
4. To **give the guidance & information to students to people from rural area by the experts** from academic, social, political, cultural, agriculture and economic fields.
5. To create volunteers and social workers and **to train them in order to develop the rural area in all fields.**
6. This Institution does not believe in any caste, religion and discrimination all students from any caste are admitted in the college, especially **students from reserve category are admitted with priority.**
7. This is **a Non-Political Institution.**

1.2 Vision and Mission Statement of College

Vision – The College has the following Vision:

- To provide quality higher education to the students from socio-economically background and the poor family, and friendly atmosphere for teaching, learning and research process.
- To shape the students in becoming globally competent, skilled and socially oriented human power.

Mission - The College has the following Mission:

- To provide the facilities of education to the students who are from economically weaker section of the society from deprived lot.
- To make the students aware of human ethics, culture and heritage.
- To create the better manpower for the nation.

1.3 Institutions in the premises

The Premises is situated amidst the landscape serene Taluka of Sangola district with close proximity recreational and amenities such Hospital, Fire Station and much more. During the entire day schedule with smooth transition of internal student traffic management which is highly commendable.

It was established in 1993 as a single building, over the time it has grown into multiple blocks prevailing in the premises and has undergone multiple expansion activities. The College has the following goals:

- **To help the government to broaden view of higher education.**
- **Knowledge based development.**
- **Inclusive growth for socio-economic changes and sustainable development.**

The aim of the College is to continuously enhance the teaching methods in order to provide students with an opportunity for their all-round development. It also strives for excellence in academics and makes an effort to induce passion for learning along with the inspiration for decisive thinking and assessment, thereby helping them to become the best professionals in their chosen careers.

The institution offers the following courses affiliated to Punyshlok Ahilyadevi Holkar Solapur University.

- **Graduation** – It offers the following Undergraduate courses.
    - Bachelor of Arts (B.A.)
    - Bachelor of Science (B. Sc) General
    - Bachelor of Science (Entire Computer Science (E.C.S.))
    - Bachelor of Computer Applications (B.C.A.)
- **Post-Graduation** – It offers the following Post Graduation courses.
    - Masters of Arts (M.A. in English, History)
    - Masters of Science in Computer Science
- **Post-doctoral courses -** It offers the PhD or DPhil course in History.
- **Short-Term Courses –** It offers Dept. Related Self-Financed Courses.
    - Domestic appliances and its maintenance
    - Analysis of soil and water
    - Food Processing
    - Hematological Analysis
    - Programming in C++
    - Hardware Maintenance
- **Certificate courses –** It offers the following Certificate Courses.
    - Spoken English
    - Museology
    - Modi script
    - Brahmi script

The College aims at training young women and men to be competent, committed and compassionate, and lead in all walks of life.

1.4 Assessment of the College

Affiliations - The College is affiliated to Punyshlok Ahilyadevi Holkar Solapur University.

Certification – The institute has received the following Certifications

- ISO
- NIRF
- AISHE
- NBA/ Quality Audit

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

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

Cycle	First	Second	Third
CGPA	0	2.76	2.24
Grade	B	B	B
Year	2004	2012	2018

Table 1: NAAC Accreditation details of the College

The college is due to enter its Fourth cycle of NAAC soon.

1.6 Achievements of the College

The college has a tremendous track record of excellence in Built form and educational services provided, below are some of the achievements of the prestigious Institute.

1. The **College has participated in the program by Govt/ of Maharashtra and received Participation Certificate for the same.**
2. **Asst. Professor V. M. Pawar received the State level award Aadarsh Seva Sanaman Purasakar (Ideal service Honours) in 2020.**
3. **Asst. Professor V. M. Pawar received the Best Paper Presentation Award in 2020.**

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
Vidnyan Mahavidyalaya
Tal. Sangola, Dist. Solapur, affiliated to Solapur University, Maharashtra as
Accredited
with CGPA of 2.24 on seven point scale
at B grade
valid up to September 25, 2023

Date : September 26, 2018

Director

Acting Principal
Vidnyan Mahavidyalaya ,Sangola
Tal.Sangola Dist.Solapur

BCSC/32/RAR/MHCOGN11459

महाराष्ट्र शासन

सोलापूर वन विभाग, सोलापूर

वनवृत्त पुणे

सहभागिता प्रमाणपत्र

प्रमाणित करण्यात येते की, मुख्याध्यापक / प्राचार्य विज्ञान महाविद्यालय, सांगोला

तालुका सांगोला जिल्हा- सोलापूर येथील विद्यार्थ्यांनी १ ऑक्टोबर ते ७ ऑक्टोबर, वनजीव सप्ताह निमित्त सोलापूर वनविभागाकडून आयोजित करण्यात आलेल्या जिल्हास्तरीय निबंध स्पर्धा / चित्रकला स्पर्धा मध्ये उत्स्फूर्तपणे सहभाग नोंदविला.

सबब आपल्या शाळेस / कनिष्ठ महाविद्यालयास हे सहभागिता प्रमाणपत्र प्रदान करण्यात येत आहे.

(प्र. ह. खडसे)
उप वनसंरक्षक
सोलापूर वन विभाग, सोलापूर

स्थळ : सोलापूर
दिनांक : ०७ ऑक्टोबर २०१९

प्रभारी प्राचार्य
विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

2. Institution overview

2.1 Populace analysis for Academic year 2019-20

2.1.1 Students data

The student data (shared by the College) shows there were a total of **802 Girl and 808 Boys** students and a total of **1,610 students**.

2.1.2 Staff data

Type	Male	Female	Total
Teaching staff	29	2	31
Non-Teaching staff	14	1	15
Total	**43**	**3**	**46**

Table 2: Staff data of the Institution for 2019-20

The staff data shows the premises had a total of **46** staff members.

2.2 Populace analysis for Academic year 2020-21

2.2.1 Students data

The student data (shared by the College) shows there were a total of **712 Girl and 841 Boys** students and a total of **1,553 students**.

2.2.2 Staff data

Type	Male	Female	Total
Admin staff	29	2	31
Teaching staff	14	1	15
Total	**43**	**3**	**46**

Table 3: Staff data of the Institution for 2020-21

The staff data shows the premises had a total of **46** staff members.

2.2 Site analysis

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

- **Location -** The Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola's Vidnyan Mahavidyalaya Sangola located at Taluka Sangola, District Solapur, Pincode 413 307 (Maharashtra) is close to the Sangola-Vita Road and falls under the Sangola Municipal Corporation of Solapur district in the Indian state of Maharashtra.
- **Neighbourhood context -** The premises is surrounding by Residential areas on the immediate surroundings of the site. The premises is situated amidst the mixed land use (A combination of Residential, Commercial, administrative Built-up spaces) on all sides.
- **Natural physical features –** The premises includes a rich biodiversity and adequate number of plants in the adjacent open space.
- **Manmade features –** The premises is situated in a rural area amidst huge open land areas with close proximity to all necessary amenities. The materials used for construction are RCC and the landscaping includes natural trees as well as potted plants.
- **Circulation –** There is a smooth transition of pedestrian traffic inside the premises due to the large entrance gate and the huge open space where vehicles of students and staff is parked.
- **Climate –** As the College falls under Solapur District, the climate here is tropical. The summers here have a good deal of rainfall, while the winters have very little. This location is classified as Aw by Köppen and Geiger. In Solapur, the average annual temperature is 27.3 °C | 81.2 °F. About 835 mm | 32.9 inch of precipitation falls annually.

(Source: https://en.climate-data.org/asia/india/maharashtra/solapur-2803/)

2.3 Total Institute Area & College Building Spread Area

The **total site area is 7 acres** and **total built-up area is 41,652.34 sq. ft.** for approx. 1,599 footfalls.

2.4 Institute Infrastructure

2.4.1 Establishment

The building was established in 1991. The Building is a Reinforced Cement Concrete (RCC) framework building. **Overall the Infrastructure of the Building is excellent in terms of the Architecture Design and Green Building Design. The Premises covers almost all the requirements for a Green Habitat and is one of its kind set up pretty close to nature.**

2.4.2 Spatial Organisation

The overall ambience of the College is warm and inviting. The classrooms and other spaces have ample natural ventilation in the form of clear glass windows with fresh air ventilation. The architecture of the building is quite well designed. The colour palette not just helps the building to stand out but also provides an Institutional arena. It balances with the local architecture with the natural landscapes of huge coconut trees all around. The design emphasis on providing calmness to the built form and gradually merges with the serene landscape.

There are no false ceilings in the premises. The floor to floor height is between 10 to 12 feet. There are no lifts in the premises. There are provisions for amenities such as Library and Restrooms. The room-wise details are mentioned below:

S. No	Room No.	Room Name	Floor
1	1	Library (Grant)	Ground Floor
2	2	Library (N- Grant)	Ground Floor
3	3	Reading Room - Boys	Ground Floor
4	4	Reading Room - Boys	Ground Floor

5	5	Reading Room - Girls	Ground Floor
6	6	Reading Room - Girls	Ground Floor
7	7	NSS	Ground Floor
8	8	History	Ground Floor
9	9	English	Ground Floor
10	10	Principal Cabin	Ground Floor
11	11	Stock Room	Ground Floor
12	12	Office	Ground Floor
13	13	Staff Room	Ground Floor
14		Porch	Ground Floor
15	14	Guest Room	Ground Floor
16	15	Gymkhana	Ground Floor
17	16	Class Room	Ground Floor
18	17	Class Room	Ground Floor
19	18	Class Room	Ground Floor
20	19	Class Room	Ground Floor
21	20	Chemistry Lab 1	Ground Floor
22	20	Chemistry Lab 2	Ground Floor
23	21	Chemistry Staffroom	Ground Floor
24		Store Room	Ground Floor
25		NCC	Ground Floor
26	70	Canteen	Ground Floor
27	37	Computer Lab	First Floor
28	38	Computer Lab	First Floor
29	39	Electronics Lab	First Floor
30	40	Computer Lab	First Floor
31	41	IQAC Room	First Floor

32	42	Staffroom (Non-grant)	First Floor
33	43	Computer Lab	First Floor
34	44	Classroom	First Floor
35	45	Classroom	First Floor
36	46	Statistics	First Floor
37	47	Mathematics	First Floor
38	48	Physics	First Floor
39	49	Geography	First Floor
40	50	Physics (Dark room)	First Floor
41	51	Physics	First Floor
42	52	Botany	First Floor
43	53	Botany	First Floor
44	54	Zoology	First Floor
45	55	Zoology	First Floor
46	62	Multipurpose Hall	Second Floor
47	63	Classroom	Second Floor
48	64	Classroom	Second Floor
49	65	Classroom	Second Floor
50	66	Classroom	Second Floor
51	67	Classroom	Second Floor
52	68	Classroom	Second Floor
53	69	Classroom	Second Floor

Table 4: Room-wise space details

2.4.3 Fire Safety

When the building was constructed Fire fighting norms and permission from Chief Fire Officer was not in practice. However, the Institution has taken care for adequate fire safety measures to be adopted. Each floor has an open staircase without any barriers

for fire safety measures. These staircases are free of any kind of storage or combustible material. The windows in each classroom are at a low height with fresh air and natural light thereby adding to ample ventilation throughout the day. The College should adopt additional fire safety practices such as fire hydrant and others. The current facilities are quite well maintained.

2.4.4 Operation and Maintenance of the premises

The interview session with the staff regarding the operation and working hours is summarised in the table. The Institutions are open Monday to Saturday for full day except every Saturday is half day only for Science laboratory and admin. Sunday is an off for all. The operating hours and days are as follows as the College runs in two shifts.

S. No.	Section	Spaces	Time	Hours / day	Days in a year
1	Main Institutional College	Student areas and Teaching faculty	7:45 a.m. to 3:15 p.m.	7.5	260
2	General areas	Admin areas and library, Passage, staircase, toilet	7:30 a.m. to 4:00 p.m.	8.5	280

Table 5: Schedule of the timings of the premises

3. Green Audit

3.1 About the Green Audit

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

3.2 Analysis for the Green Audit

The procedure included detailed verification for the following:

Energy Audit

- Analysis of the Lights, Fans, AC, Equipment
- Renewable energy
- Scope for reducing the current energy bills if any
- Improvement in the thermal comfort of the premises

Water Audit

- Analysis of the current water consumption of premises
- Scope to include Rain water harvesting and Waste water treatment in premises

Waste Audit

- Current waste produced, its segregation and usage
- Strategies to be adopted for waste management and awareness

Environmental Audit

- Analysis of the current landscape + hardscape of premises
- Analysis of the flora and fauna of premises
- Strategies adopted at present to enhance vegetation
- Measures that can be adopted for ecological improvement of premises

3.3 Strategy adopted for conducting Green Audit

The strategies included data collection from admin department, actual inventory, investigation to check the operation and maintenance, analysis of the data collected and preparation of the Report.

3.4 Timeline of the activities for Green Audit

- 28 June 2021 – Discussion with the College
- 20 July 2021 - Initiation by the College
- 23 November 2021 – Student and Staff survey by College
- 23 December 2021 – Data collection completed by College
- 27 January 2022 – Submission of the Report

Ecological (Environment) Audit

Background reference image Yugal Shrivastava on pexels

Greenvio Solutions

4. Ecological (Environmental) Audit

Environment is an essential part for human survival. We co-exist with the environment and it cannot be termed as a separate entity. The Ecological audit helps to understand the flora, fauna that exists and steps that can be taken to improve the same. To denote if there are problems related to sound in and around the surrounding. In terms of the carbon footprint it helps in keeping a tab on the eco-friendly habits incorporated by the inhabitants of the premises. Health today is the topmost priority, a general understanding of the initiatives undertaken along with sufficient hygiene practices adopted. Universal design is applicable to all built and unbuilt spaces. The premises needs to have facilities for students who are specially abled alike.

As part of our study we could state that the Institution has developed eco-friendly practices and sustainable solutions which are well reflected in the rich biodiversity of the Premises. Being situated near the city and in the beautiful area of Sangola district the appreciation space towards the main entrance provide a welcoming approach to the College. It has an equal balance of landscape and built space thus providing an enriching arena to the students.

4.1 Open Spaces

There is a beautiful balance of natural and open spaces in the premise and the open/ vegetation spaces are balanced overall. The ground is used by students at present for sports and cultural gatherings. The huge ground is commonly used by all the 32 Buildings in the premise. The design on the entire is such that the landscape and softscape spaces are very well oriented and located thus being extremely useful to Institutions in the site. **There are provisions for natural plantations which have enhanced thebeauty of the space.**

There adequate Maintenance staff allotted for the open spaces and they have done an excellence job in terms of the duty allotted. The infrastructure committee too is involved in this process. The traditional tap and pipe facility is adopted for watering and the college has taken special provisions for the same. The spaces are watered daily insummer. T**he efforts to maintain the existing space are commendable.**

4.1.1 Flora analysis

A) Plants and Trees

The trees constitute the maximum percentage out of all the varieties of plantations in premises and available in a **total of 350 numbers**. The list is as follows:

S.No	Botanical Name	Vernacular name	Family	Nos
Plants found in the overall premises				
1	*Cocus Nucifera*	Cocount	Arecaceae	1
2	*Emblica Officinalis*	Avala	Euphorbiaceae	1
3	*Cycas Revolute*	Cycas	Cycadacea	2
4	*Jatropha Curcas*	Yearand	Euphorbiaceae	4
5	*Murrya Koenigii*	Kadipatta	Rutaceae	2
6	*Bougainvillea Glabra*	Bougainvel	Nyctginaceae	11
7	*Polyalthia Longifolia*	Ashok	Ceasalpinaceae	17
8	*Hyophorbegeni Caulis*	Bottle palm	Aracaceae	9
9	*Azadirachta Indica*	Neem	Meliaceae	24
10	*Sennasulfurea*	Mothatarwad	Ceasalpinaceae	2
11	*Grevillea Robusta*	Silver oak	Protaceae	3
12	*Hibiscus Trionum*	Trionum	Malvaceae	3
13	*Bauhinia Variegate*	Kanchan	Fabacaeae	3
14	*Sesbania Grandiflora*	Shevari	Fabacaeae	1
15	*Platycladus Orientalis*	More pankhi	Cupressaceae	3
16	*Catharanthus Roseus*	Sadafuli	Apocynaceae	2
17	*Ficus Racemosa*	Umber	Moraceae	11
18	*Tecoma Rosea*	Ghantiful	Bignoniaceae	15
19	*Tecoma Campensis*	Ghantiful	Bignoniaceae	15
20	*Tabernaemontana Divaricata*	Tagar(Ananta)	Apocynaceae	25
21	*Pandanus Variegated*	pandan	Pandanaceae	9

22	*Acalypha Hispida*	Kuppikhokali	Euphorbiaceae	12
23	*Acalypha Alba*	Kuppikhokali	Euphorbiaceae	15
24	*Nerium Indicum*	Kanher	Apocynaceae	18
25	*Lilium (Lily)*		Lilieae	9
26	*Codiaeum Variegatum*	Croton	Euphorbiaceae	4
27	*Tinospora Cordifolia*	Gulvel	Menispermaceae	2
28	*Jatropa Integerrima*	Peregrine	Euphorbiaceae	1
29	*Delonix Regia*	Gulmohar	Fabaceae	7
30	*Sansevieria Trifasciata*	Sanke plant	Asparagaceae	12
31	*Euphorbia Macrocarpus*	Lady's slipper	Euphorbiaceae	5
32	*Wodyetia Bifurcate*	Foxtail palm	Arecaceae	2
34	*Phoenix Dactylifera*	Palm	Arecaceae	2
35	*Hibiscus Rosa-Sinensis*	Jaswand	Malvaceae	2
36	*Jacaranda Mimosifolia*	Nilmohor	Bignoniaceae	1
37	*Samanea Saman*	Rain Tree	Fabaceae	1
38	*Tabebuia Rosea*	Pink poui	Bignoniaceae	1
39	*Ficus Benjamina*	Weeping fig	Moraceae	1
40	*Nephrolepis Exaltata*	Sword fern	Nephrolepidaceae	1
41	*Dracaena Marginata*	Dragon tree	Asparagaceae	2
42	*Withania Somnifera*	Ashwgandha	Solanaceae	2
43	*Bismarckia Noblis*	Fan Palm	Arecaceae	2
Plants found in garden and shaded net area				
44	*Durantaerecta*	Golden duranda	Verbenaceae	5
45	*Annonareticulata*	Custard Srapple	Annonaceae	2
46	*Jovibarbaheuffelii*	Cactus	Cactaceae	4
47	*Bryophyllumpinnatum*	Panfuti	Crassulanceae	5
48	*Aloe Vera*	korfad	Liliaceae	5

49	*Abeliatriflora*	Sher	Caprifoliaceae	1
50	*Abelmoschusmanihot*	Allu	Malvaceae	1
51	*Aspidiumspinulosum*	Fern	Osmundaceae	2
52	*Platycladusorientalis*	Morpankhi	Cupressacae	2
53	*Hibiscus Trionum*	Trionum	Malavaceae	4
54	*Polysciasfruticosa*	Arerlia	Araliaceae	5
55	*Thamustinctorius*	Dressigna	Asteraceae	1
56	*Chrysalidocarpuslutescens*	Areca palm	Arecaceae	6
57	*Asparagus Racemosus*	Shatavari	Asparagaceae	1
58	*Psidiumguajava*	Peru	Rubiaceae	1
59	*Sesbaniagrandiflora*	Shevari	Fabaceae	10
60	*Calotropisgigantea*	Rui	Asclepiadaceae	1
61	*Ficusracemosa*	Umber	Moraceae	2
62	*Neriumindicum*	Kanher	Apocynaceae	2
63	*Tecomarosea*	Ghantiful	Bignoniaceae	1
64	*Tecomacampensis*	Ghantiful	Bignoniaceae	1
65	*Acalyphahispida*	Kuppikhokali	Euphorbiaceae	2
66	*Acalypha Alba*	Kuppikhokali	Euphorbiaceae	1
67	*Jatropacurcus*	Mogli	Euphorbiaceae	1
68	*Hyophorbegenicaulis*	Bottle palm	Aracaceae	3
69	*Cocusnucifera*	Cocount	Arecaceae	1
70	*Rosa Centifolia*	Gulab	Rosaceae	1
71	*Rosa Indica*	Gulab	Rosaceae	2
72	*Syzygiumcumini*	Jambul	Myrtaceae	1
73	*Ocimumsantum*	Tulas	Lamiaceae	7
74	*Hibiscus Rosa-Sinensis*	Jaswand	Malvaceae	1
75	*Hamelia Patens*	Firebush	Rubiaceae	1

76	*Plumeriarubra*	Red frangipani	Apocynaceae	1
78	*Plumeria Alba*	White frangipani	Apocyanaceae	1

Table 6: List of Trees available in premises

4.1.3 Green practices

We observed the following points during the investigation:

- There is **availability of open space** in the premises.
- There are provisions for **sufficient number of plantations**.
- There are adequate Maintenance staff who manage the entire premises.

4.1.4 Eco-friendly initiatives undertaken

The Institution has undertaken the following initiatives through **excellent efforts** towards save environment measures.

- **Health camp**
- **Blood donation camp**
- **gender sensitisation**
- **Tree plantation**
- **Construction of *Vanrai Bandhra* (Check dam)**
- ***Swatch Bharat Abiyan***
- **National Technical Day celebrations**

Due to pandemic situation multiple activities could not be undertaken.

4.2 Noise Audit

4.2.1 Macro level

On a macro level there are settlements close to the site but there is there is minimum noise pollution from the surrounding areas. The approach road towards the College has balanced traffic. **Overall as per our analysis the noise level is low and less noise Pollution as College falls under silent zone as per our analysis.**

4.2.2 Micro level

The College has huge open space covered with greens which absorb the sound and help in keeping noise levels low. The students and staff do not have any disturbance in academics majorly. However there is provision for staff parking which causes very less noise. There are no particular equipments which cause any effect with respect to noise. **Overall the noise levels inside the premises are low which is a good practice.**

4.3 Carbon Footprint Audit

4.3.1 Eco-friendly Commuting Practices

Based on data collection and discussion with staff the following points were noted:

- **Ease of commuting –** Owing to close proximity to public transport the access is very feasible and walk able.
- **Parent's commute -** There are 2 Parent-teacher meetings held in a year and the turn-out is around 65%
- **Student vehicles** – The provision provided by College includes 100 cycles, 50 bikes, 8-10 four-wheeler. Most of the students come to College by bicycles.
- **Visitors vehicles –** Approximately 25-30 visitors with vehicles visit the premises daily, but visitors vehicles are not parked in the premises.

4.3.2 Heat Island Reduction

The Institution has **adopted the following practices which are yielding positive results** in terms of Urban Heat Island Effect which refers to increase in temperature of the surrounding because of ineffective strategies.

- **Exposed roof areas –** The terrace is a flat roof which is absolutely clean and well maintained. The Buildings are covered with white paint and Solar Panels. The Maintenance staff along with the Management have taken ample measures to maintain the same in proper condition. **There was no weathering of roof observed.** The current practices are well maintained.
- **Exposed non-roof hardscape areas -** There are pathways on all sides of the premises. These include some natural and potted plantations along the pathways.

However, the trees are huge and the canopy is wide spread thus providing ample shade to the outdoor areas of the premise. Hence, there is no direct sunrays or similar effect affecting the students and staff. The college has an open space in the form of lush green carpet which acts as a solution for the urban heat island effect. This huge green space is a very good solution for reducing any harmful health consequences which may arise due to harsh sunlight.

There are adequate measures adopted in the premises to reduce heat island effect of Building roofs and in site.

4.3.3 No Outdoor Light Pollution

The College compound lights are not upward looking there not causing light pollution.

4.4 Health & Hygiene Audit

4.4.1 Smoke Exposure

As per the Site visit the following analysis has a positive impact on premises.

- The College has No Smoking awareness posters as part of the awareness.
- The Canteen uses Gas cylinders for cooking, there is no utilisation of fire wood. Thus there is no smoke from burning of fire wood and any health issues related to the same.
- The garbage in premises is not burnt and there is not air pollution because of it. The Institution is a tobacco and smoke free premises which helps in adapting to a Healthy Institution
- There is a huge open space in premises which is allowed for social gathering among students. It is also used for sports, outdoor games, annual days, cultural functions and also used for physical activities by the students.
- There is parking provision inside the premises there is slight issue of dust owing to the same but it is balanced with the thick vegetation in the premises.

4.4.2 Hygiene

- For overall hygiene of the students and staff there are facilities such as Washroom facility on ground floor, napkin disposal, hand wash, Sanitary vending machines, drinking water facility as Aquaguard.
- The hygiene of toilet areas is well maintained.
- **The entire premises is cleaned on daily basis, it is very appreciating that there are only few Maintenance staff who strive their best to take care of the entire premises in the most excellent way possible.**
- There are designated Hygiene specialist and Maintenance staff who keep a regular check about the operation and maintenance of the toilet areas and the equipments, lights and all facilities on each floor.
- Water management initiative with appropriate hygiene is undertaken. The areas of water tanks in site on ground floor are clean and no mosquito breeding spots are there.
- The food premises and equipments are cleaned as per schedule with special care taken to avoid any water stagnation.
- The food waste and other refuse is removed periodically from food handling areas to avoid accumulation.
- As part of Tree Plantation programme the initiative of **Swachh Bharat Abhiyan of Govt. of India** is undertaken during Environment Day Celebrations.

4.5 Universally Accessible Premises

As per World Report on Disability, 2011 *there are 180 million approx. Persons with Disabilities that makes it 15% of total population of India.* The College has the following facilities for user benefit.

- The College has **provisions of ramps for main access** to the Buildings from.
- There are **Handrails along corridors or near staircase** in the Buildings
- There are **provisions for wheelchair** as part of Universally accessible premises initiatives.

- The College has **resting places (seating areas)** in the premises outdoors, thereby making it user friendly for the specially abled students.
- The design of the premises is **appropriate for access with passages and corridors being wide enough for two way circulation.**
- The single loaded corridors are safe from fire safety as there are staircases and fire extinguishers provided. There is a provision of ramp in premises.

Our analysis states **the current practices are well maintained** and whenever the College undergoes renovation in future there can be an additional amenity in the form of Lifts, thus making it a 100% accessible premise.

4.6 Survey Results

An online survey was conducted to analyse the student and staff views about the premises, following are some of the reviews.

4.6.1 Participation

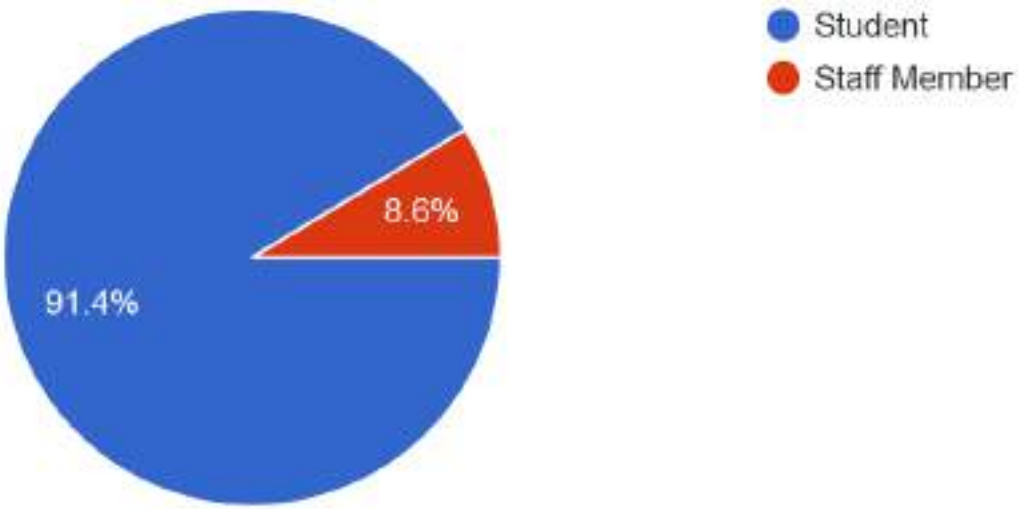


Figure 1: Participation analysis in the survey

A total of **116 responses** were received out of which 91% were students.

Note about the review-rating survey

The Participants were asked to review (Though an online mode) the practice on a scale of 1-5 with scale components as follows:

- Scale 1 – Poor

- Scale 2 – Satisfactory
- Scale 3 – Good
- Scale 4 – Very good
- Scale 5 – Excellent

The figures in each of the columns of graph depict the Number of participants responses in numerical (Percentage of the participant response) – For example 101 responses (44.5%)

4.6.2 Rate the Green awareness practices in College

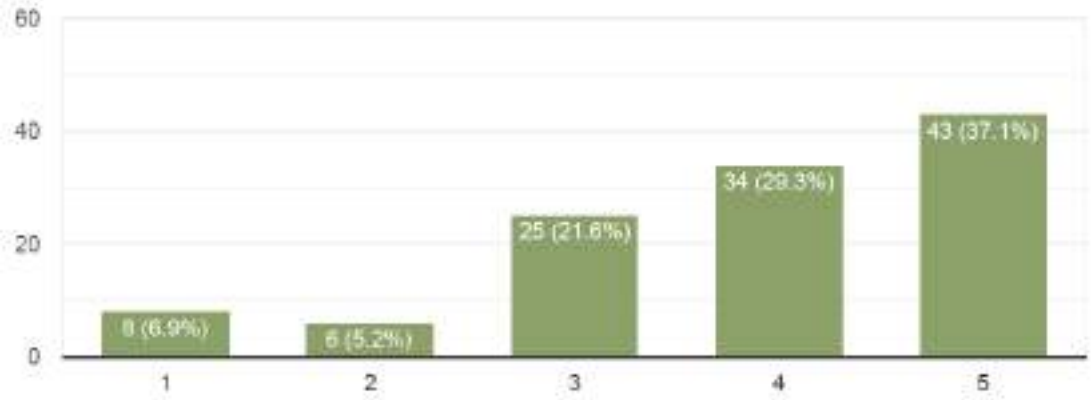


Figure 2: Green awareness practices in College

The Students, Staff **(almost 37%)** of responses found the practices to be excellent.

4.6.3 Does your College conduct environment awareness programs/ webinars/ plantations/ cleanliness or similar programs?

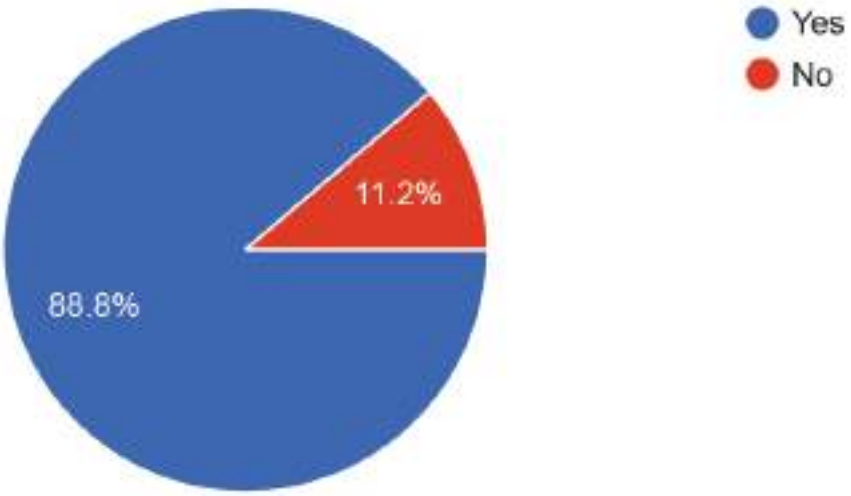


Figure 3: Survey about the College conducting environment awareness programs/ webinars/ plantations/ cleanliness or similar programs

The students, staff **(almost 89%)** of responses confirmed activities are conducted.

4.6.4 Do you participate is such events?

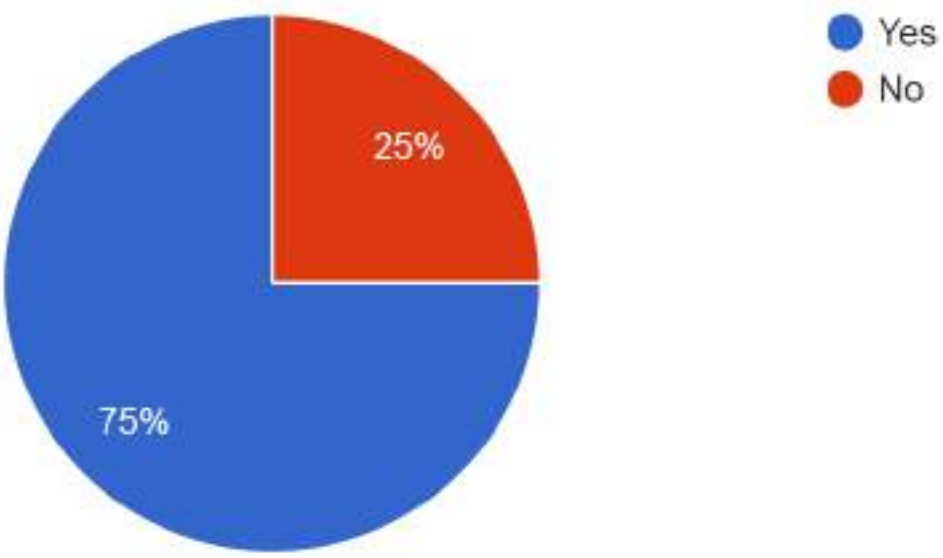


Figure 4: Participation of Students and Staff in the Environment related programs conducted by the College

The students, staff **(almost 75%)** of the responses confirmed their participation.

4.6.5 If yes, what has been your experience about the program?

We have listed some of the key responses below.

- **Very good**
- They had kept the **Environment Clean Awareness Program which was really good.**
- Nice program
- **Brilliant**
- **It was a good experience for me. This program such a knowledgeable.**
- Great
- **Nicely organized and knowledgeable.**
- **My experience is very good about program because in such programs we plant more trees in College & take care of them.**
- My experience is very nice and I feel very happy to do this work.
- Increased knowledge about environment and green building.

4.6.6 What according to you are the positive steps taken by the Institute towards Green Building/ Good maintenance?

We have listed some of the key responses below.

- **They arrange webinars and give information about green building.**
- Awareness Programme
- Pollution and waste reduction measures and the enabling of re-use and recycling.
- **Tree plantation Programmes.**

4.7 Recommendations for a Sustainable Habitat

a) Promote the use of Eco-friendly vehicles

There can be provision for cycle and battery operated vehicles/ low emission vehicles such as electrically driven vehicles parking in open space along with battery charge points, this would inspire students to change mode of transportation and adopt sustainable practices.

b) Low VOC Paints and Adhesives

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

c) Environmental awareness

There can be various artworks on compound wall giving message of saving environment through the joint efforts of the students and staff thereby making the student socially and environmentally responsible citizen.

d) Water and food facility for birds

As there are large numbers of fauna present in the premises, small bird houses designed with organic materials can be implemented.

e) Environmental Hygiene clubs

There can be provision of environmental hygiene clubs formed jointly with students and staff to ensure additional hygiene of premises and promote student participation.

विज्ञान महाविद्यालय, सांगोला येथे दिव्यांग दिन साजरा

सांगोला(प्रतिनिधी):- समाजाच्या मुळ प्रवाहापासून व विकासापासून जो दूर राहिलेला व्यक्तीसमुह आहे. परकेपणा व न्यूनगंड यामुळे ज्या व्यक्तीसमुहाला समाजामध्ये मिसळावे, आपल्या वेदना व्यक्त कराव्यात, असे वाटत नाही, त्याचेच नाव दिव्यांग आहे. दिव्यांग असणाऱ्या व्यक्तीकडे केवळ दयाबुद्दीने न पाहता तो व्यक्ती आपलाच आहे, असे समजले पाहिजेत. वादृष्टीने सर्वांनी प्रयत्न करावेत, असे विचार प्रा.कॅप्टन संतोष कांबळे यांनी व्यक्त केले.

विज्ञान महाविद्यालय, सांगोला येथे दिव्यांग दिन साजरा करण्यात आला. यावेळी प्रमुख पाहुणे म्हणुन प्रा.कॅप्टन कांबळे बोलत होते. कार्यक्रमाचे अध्यक्षस्थान प्रा.डॉ.तानाजीराव फुलारी यांनी भूषविले.

३ डिसेंबर १९९२ पासून दिव्यांग दिन साजरा केला जातो, असे सांगून प्रा.कॅप्टन साळुंखे पुढे म्हणाले, आपल्या सभोवतालच्या परिसरातील दिव्यांग लोकांच्या भावना, वेदना समजून घेतल्या पाहिजेत. या लोकांना पैशापेक्षा मदतीची व आधाराची आवश्यकता आहे. अनेक क्षेत्रामध्ये दिव्यांग बांधवांनी आपल्या कर्तृत्वाचा ठसा उमठाविला आहे. अशा व्यक्तींना आपण सर्वांनी मिळून मदतीचा हात पुढे केला पाहिजे व त्यांच्या ज्ञानाचा उपयोग राष्ट्र उभारणीसाठी केला पाहिजे, असेही त्यांनी सांगितले.

कार्यक्रमाचे अध्यक्ष प्रा.डॉ. तानाजी फुलारी मार्गदर्शन करताना म्हणाले, शारीरिक व मानसिक दृष्ट्या अपंग असणाऱ्या व्यक्तींना प्रोत्साहन दिले पाहिजे. त्यांचे दु:ख, समस्या यावर उपाययोजना केल्या पाहिजेत तरच त्यांच्या मनामध्ये असणारी भिती कमी होणार आहे. त्यांच्याकडे असणाऱ्या ज्ञानाचा समाजाने उपयोग करुन घेतला पाहिजे. त्यांना सामाजिक, राजकीय, आर्थिक, शैक्षणिक क्षेत्रामध्ये संधी उपलब्ध करुन दिली पाहिजे. तेव्हा दिव्यांग व्यक्तीचा सन्मान करायला शिकले पाहिजे, असेही शेवटी ते म्हणाले.

कु.स्वाती खांडेकर, प्रा.बाळकृष्ण कोकरे यांनी आपल्या मनोगतामध्ये दिव्यांग व्यक्तींची समाजामध्ये होणारी अवहेलना स्पष्ट केली. कार्यक्रमाच्या सुरुवातीला दिव्यांग व्यक्तींचा प्रमुख पाहुण्यांच्या हस्ते गुलाबपुष्प देऊन सत्कार करण्यात आला.

कार्यक्रमाचे सुत्रसंचालन प्रा.दिपक रिटे यांनी केले. यावेळी प्रा.डॉ.काकासाहेब घाडगे, उपप्राचार्य संभाजीराव शिंदे, प्रा.किसन पवार यांच्यासह विद्यार्थी, विद्यार्थीनी व दिव्यांग बांधव मोठ्या संख्येनी उपस्थित होते. आभार प्रा.किसन पवार यांनी मानले.

कार्यक्रम यशस्वीरित्या पार पाडण्यासाठी शिक्षक, शिक्षकेतर कर्मचारी यांनी विशेष परिश्रम घेतले.

Waste Audit

Background reference image Polina Tankilevitch on pexels

Greenvio Solutions

5. Waste Audit

Waste is an inevitable part of our lives. Over the years as the awareness about waste management techniques has given a rise to rethink how the waste can be avoided form being sent to the landfills. The audit provides an approximation of the types of waste generated, location of waste collections, disposal techniques used, waste segregation methodologies adopted, waste management strategies that are and implemented in addition to the newer ways the can be adopted aiming to make the premises clean and sustainable. Here sustainable refers to a broader aspect to analyse whether the current techniques are having positive or negative effect on the stakeholders of the premises.

5.1 Waste produced

5.1.1 Types and disposal of waste in Premises

The types of waste collected in the premises are as follows, these are separated before processing.

S. No.	Type of waste	Source and quantity	Current Disposal method	Can be treated/ recycled?	Methodology
1	Solid waste	Toilets–Biodegradable waste of 15-20 kg per week	Led in the storm water drains	Yes	TREATED - Small biogas plant can be proposed in open space
2	Paper waste	Newspaper and other paper	Sold to vendor	Yes	CONTINUE - with the current practice
3	E-waste	Computers - Non-biodegradable waste as per the annual year usage	Given to vendor	Yes	CONTINUE - with the current practice
4	Dry waste in form of leaves	Open space & plantations, papers - Non biodegradable waste of 8-10 kg per week	Handed over to Municipality	Yes	TREATED - Bio-Composting in a 10 x 8 x 5 feet
5	Liquid waste	Toilets, washbasins – Around 100 – 120 litres per week during general times and 50 litres at present	Led to the storm water drain and garden	Yes	TREATED - Waste water treatment plant a well as continue with current practice of reuse in garden
6	Organic regular waste	Dust, dirt usually dry waste from Canteen and all sources – approx. 3 to 5 kg	Handed over to Municipality	Yes	Bio-Compost to a certain extent

Table 7: Summary of the types of waste produced in the premises

5.1.2 Bins summary

There are 7 Dustbins in the premises with volume of 7 litres (small) and 60 litres (Big) each. The analysis of dustbins is presented below.

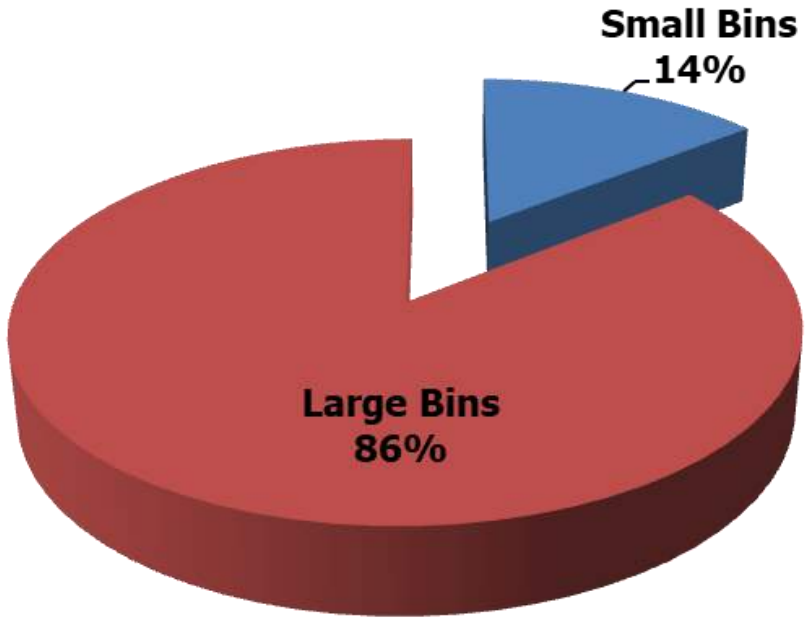


Figure 5: Analysis of dustbins size wise in the premises

The above analysis shows **86% are Large dustbins** & **14% are Small dustbins.**

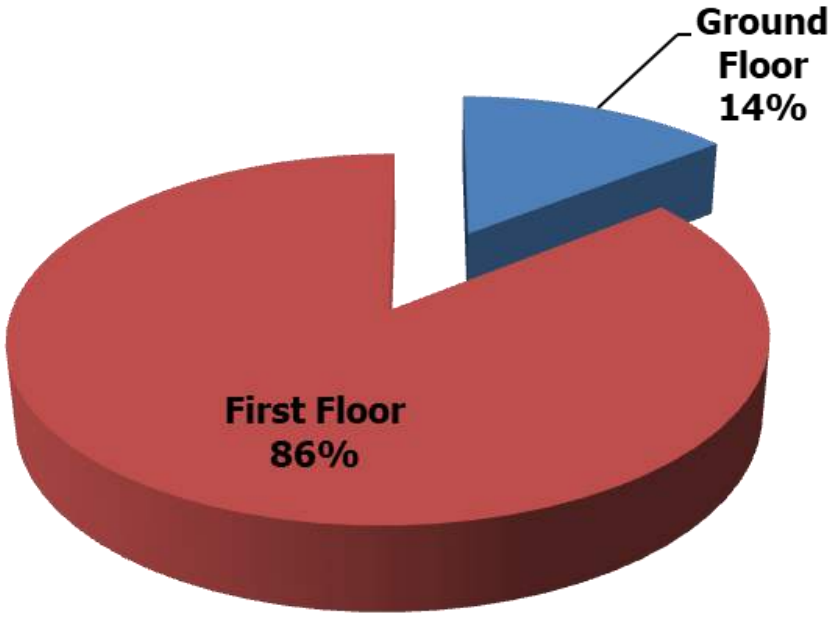


Figure 6: Analysis of dustbins floor wise in the premises

The above analysis shows **86% dustbins are present on First floor and 14% on Ground floor.**

5.2 Waste handling

Quantification wise as per Interview and survey it was found the following type of waste is Solid, Liquid, Hazardous Waste, Dry leaves, E-Waste, Canteen waste, Unused Equipment and Others (Sanitary Napkins) waste is collected. The waste produced on premises is segregated. It is collected on a weekly basis. The waste is not handed over to the local municipality van. There is a dumping pit in the garden which should not be there.

5.3 Waste management

The College reuses the papers. Ample measures are taken to maintain hygiene. No smell problem or health related issues due to the waste are there. There are adequate numbers of bins present in all parts of building. The waste does not pollute the ground or surface water. There is no problem of air pollution from waste as informed.

The wastes from toilets are discharged to main drains through underground covered channels (Safety Tanks) thus avoiding any incident. There is provision for Sanitary Napkin Disposal Machine in the premises for proper & hygienic disposal of sanitary napkins.

5.4 Survey Results

Note about the review-rating survey

The Participants were asked to review (Though an online mode) the practice on a scale of 1-5 with scale components as follows:

- Scale 1 – Poor
- Scale 2 – Satisfactory
- Scale 3 – Good
- Scale 4 – Very good
- Scale 5 – Excellent

The figures in each of the columns of graph depict the Number of participants responses in numerical (Percentage of the participant response) – For example 101 responses (44.5%)

An online survey was conducted to analyse the student and staff views about the Waste management practices adopted in College, following is the result received.

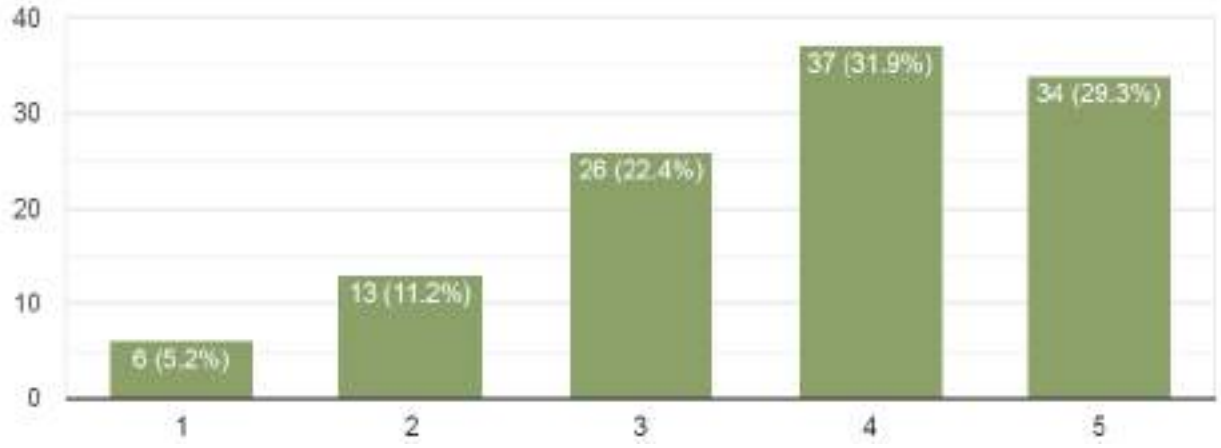


Figure 7: Waste management practices in College

The Students, Staff **(almost 32%)** of responses found the practices to be Very Good.

5.5 Recommendations for a Sustainable Habitat

a) Zero Waste practice adoption

The college can undertake a zero organic waste protocol. The following practices can be adopted as part of the same.

- The food waste generated by the students and staffs are taken by them to their own home, so that, minimum waste is generated inside the premises.
- The organic waste generated in the canteen is used as feed for a biogas plant and the biogas is used as fuel in college canteen.
- Vegetable waste and other leaf litters can be used to fed in the vermi-compost pit and the resulting vermin-cast is used as manure in the garden.
- The chemicals from the laboratories be disposed in a sealed tank along with water, so that the chemicals undergo neutralization with the water.

As part of the above there will be a requirement for a Biogas plant, vermin-compost pit, awareness signages, sealed tank for waste water from chemical laboratory.

b) Incinerators

The Incinerators should be installed in Girls toilets for disposal of sanitary napkins

c) Twin Dual Litter Dustbin Bins

There should be more number of dual litter dustbins at various locations in areas such as Canteen, open spaces. This would inculcate the awareness of waste segregation among students.

d) Signages

Message about avoiding wastage should be placed at appropriate locations.

e) Compost pit

There can be provision for a compost pit.

f) Dustbins at every 100m

There should be dustbin at every 50-100 in the open spaces.

Water Audit

Background reference image Vlad Chetan on pexels

Greenvio Solutions

6. Water Audit

Water is one of the basic needs. Pure drinking water is a resource which needs to be preserved efficiently. Water audit helps to identify the sources of water consumption, the water requirement by the premises met by these sources. The points and effective usage of without any wastage. Understanding the techniques which are best suited to the site to increase water conservation in terms of awareness and practice.

6.1 Water availability and consumption

The main source of water is through well and Rain water harvesting. The College requires water from the Local Municipality. The total water consumption is through the water tanks (Capacity 25,500 litres) on site.

6.2 Water requirement

The main areas of water requirement and type of usage is as follows

- **Drinking water –** General water required for drinking purpose using around 245-260 litres of water through the RO and Aquaguard available in the premises.
- **Toilet blocks and practical laboratories** – General usage by occupants in toilets, urinals, bathrooms, wash basins using approx. 300 litres of water daily and
- **Cleaning of the premises –** The entire Institution is very well maintained with respect to hygiene and cleaning is one of the major uses of water requirement.
- **Garden and surrounding open space** – Cleaning, watering the plants requires approximately more than 500 litres of water on alternate days in winter season and about 2-3 times a day in summer season on a regular climate day it is watered 3 days a week and in rainy season it is dependent on the monsoon showers.
- **Preparation of solutions in labs –** For experiment purpose in the Practical Laboratories water is utilised, however there is water wastage of about to a certain extent and currently this water is not treated and care is taken that it does not get mixed with the drain.

6.3 Areas of water usage

The following is a summary of the general water usage spaces - toilets, urinals, shower, flush tanks and wash basins/ taps in the premises all of these are available on ground floor. Based on the inventory done and data shared by the staff it was found that the premises have a total of 66 lavatories (including urinals), 137 taps. As per the data shared by the College, it was noted that there is wastage of water to a certain extent in the form of Toilet and Laboratory and the common reason is cleanliness.

6.4 Site investigation about water management.

- There was no water leakage in the entire premises, the pipes well maintained with adequate hygiene.
- The premises have an efficient water management in terms of operations and maintenance. The toilets were kept very tidy and are cleaned on alternate days.
- There is sufficient number of taps in the premises.
- Drip irrigation system is used for watering the Garden which is 3 days a week.

6.5 Survey Results

Note about the review-rating survey

The Participants were asked to review (Though an online mode) the practice on a scale of 1-5 with scale components as follows:

- Scale 1 – Poor
- Scale 2 – Satisfactory
- Scale 3 – Good
- Scale 4 – Very good
- Scale 5 – Excellent

The figures in each of the columns of graph depict the Number of participants responses in numerical (Percentage of the participant response) – For example 101 responses (44.5%)

An online survey was conducted to analyse the student and staff views about the Water management practices adopted in College, following is the result received.

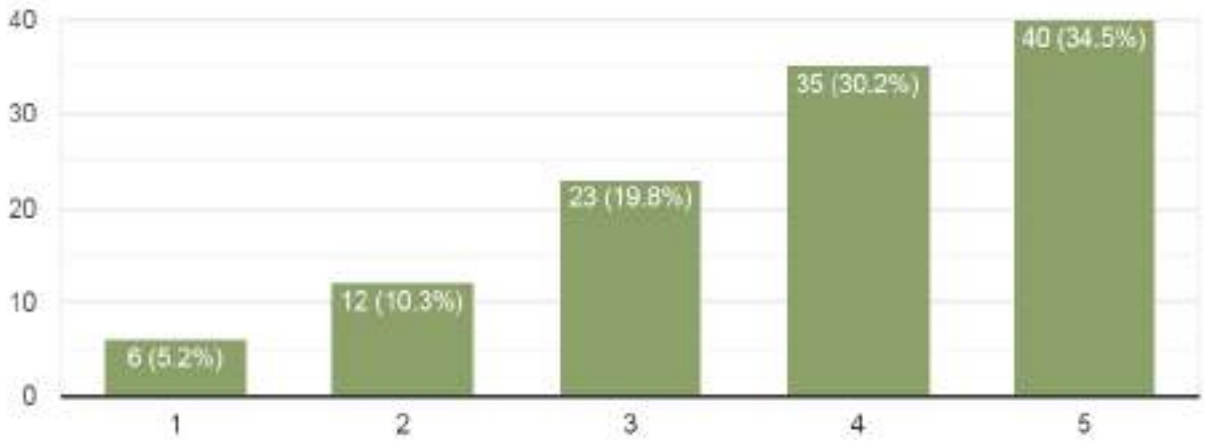


Figure 8: Water management practices in College

The Students, Staff **(almost 35%)** of the responses found the practices to be excellent.

6.6 Recommendations for a Sustainable Habitat

Below mentioned are few suggestions for better water management practices in the premises.

a) **Universal Toilet -** At least 1 toilet should be made for specially abled as per universal design norms.

b) **Waste water from toilets -** This should be collected and a waste water treatment plant can be installed in the open space wherein this water can be treated and reused for gardening and toilet flushing.

c) **Signages -** Message about avoiding water wastage should be placed at appropriate locations.

d) **Waterless urinals -** There can be provision of waterless urinals as a Green Building initiative in the premise, either the existing ones can be replace with such a facility of new toilets can be constructed in this manner.

e) **Water flow stopper -** The water flow stopper should be installed to avoid overflow and smart use of system. Install water-saving shower heads or flow restrictors. No leakage anywhere in premises. Water lawn only when it needs it.

Energy Audit

Background reference image Janko Ferlic on pexels

Greenvio Solutions

7. Energy Audit

7.1 Sources of Energy consumption

The premises uses following sources of energy consumption.

7.1.1 Primary sources

1. **Electrical (Metered) –** Light, Fans, Equipments, Pumps consume approximately 0 units per month for Rs. 362/- per month (average).
2. **Electricity (Solar - Photovoltaic cells are used for solar energy) –** There are Solar Panels in premises, they generate up to 15 kWp of energy per month. It is a Solar Rooftop Power Plant with HP Make Electronic Single Phase Net-metering for PPA with MSEDCL. It consists of 3 kW Grid Tied Inverter (PCU) and 48 Modules, fixtures and minor wiring included. **It was installed at a cost of Rs. 9,13,500/- with 5 years warranty.**

7.1.2 Secondary sources

1. **Inverter –** There is 6 Inverters in the premises and around Rs. 90,000/- was spent towards the same.
2. **Battery –** There are 13 Batteries in the premises and around Rs. 78,000/- was spent towards the same.
3. **UPS –** There are 2 UPS in the premises and around Rs. 20,000/- was spent towards the same.
4. **Gas cylinders –** There are 6 gas cylinders in the premises amounting to Rs. 12,000/- was spent towards the same.

7.2 Site investigation analysis

The Site investigation observations and interviews with the Maintenance staff, Electrical department in charge are summarised below:

- The **switch-off drills are practised at present,** the maintenance staff and Lab Attendants put off switches of all equipments regularly.
- All the **computers are shut-off after use** and also put on power saving mode.

- There are **display boards encouraging staff and students to save energy are put up in the classrooms and laboratories**.
- There are **no Ultra-violet lights and any other harmful lights used** in the premises.

7.3 Actual Electrical Consumption as per Bills

The admin department had shared the bills for Meter which is connected to all Buildings and is main source of energy supply. The supplier is Maharashtra State Electricity Distribution Limited. The type of supply is **LT – Low Tension.** The analysis of actual electrical energy consumption is summarised below. The solar panels were installed in recently post which the cost of electricity has been reduced. The details of unit consumption meter wise is as follows.

S. No.	Month	A.Y. 2019-20		A.Y. 2020-21	
		Units	Amount	Units	Amount
1	January	0	362	0	362
2	February	0	362	0	362
3	March	0	362	0	362
4	April	0	362	0	362
5	May	0	362	0	362
6	June	0	362	0	362
7	July	0	362	0	362
8	August	0	362	0	362
9	September	0	362	0	362
10	October	0	362	0	362
11	November	0	362	0	362
12	December	0	362	0	362
Total		0	**4,344**	**0**	**4,344**

Table 8: Study of the electricity consumption of the meters in premises

The summary of the above study shows the average consumption varies for each of the meters.

7.4 Survey Results

Note about the review-rating survey

The Participants were asked to review (Though an online mode) the practice on a scale of 1-5 with scale components as follows:

- Scale 1 – Poor
- Scale 2 – Satisfactory
- Scale 3 – Good
- Scale 4 – Very good
- Scale 5 – Excellent

The figures in each of the columns of graph depict the Number of participants responses in numerical (Percentage of the participant response) – For example 101 responses (44.5%)

An online survey was conducted to analyse the student and staff views about the Energy management practices adopted in College, following is the result received.

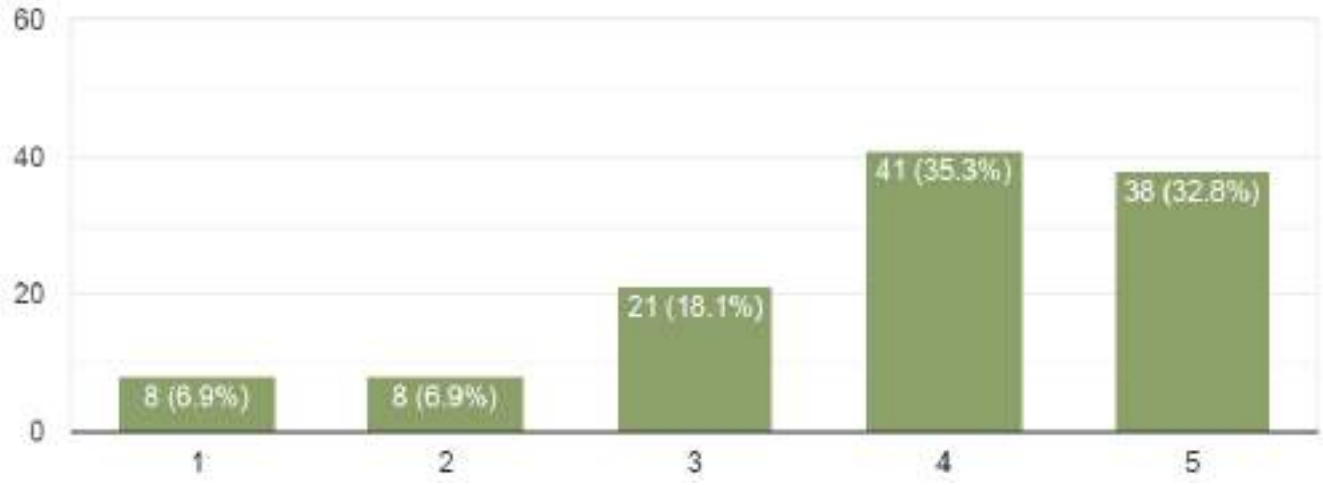


Figure 9: Energy Management practices in College

The Students, Staff **(almost 33%)** of the responses found the practices to be excellent.

7.5 Calculated Electrical Consumption as per inventory

The electricity bills provide actual consumption data. The following is the calculated consumption. It is done to understand the percentage of energy usage in the premises by various applications. It is based on the inventory collected and interviews with the staff. The additional data such as wattage is taken from market research. In terms of electrical consumption, the main sources are lights, fans, ac, equipment. The inventory and data collection for sources of energy consumed in the premises in summarised in the following sections.

Note: The following analysis is combined for entire premises taking into considerations the duration before pandemic to understand the consumption pattern as post pandemic the premises is used only for a few hours.

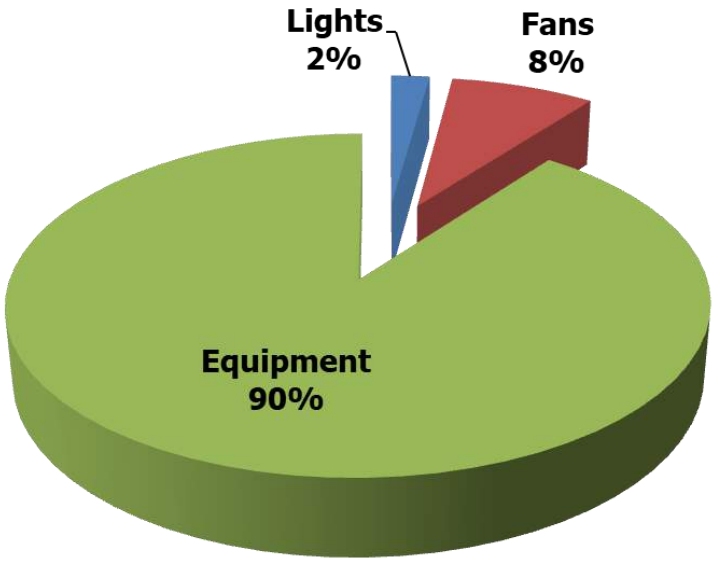


Figure 10: Summary of the Calculated Electrical Consumption as per inventory

The above graph shows that Equipment consumes 90% followed by Fans at 8% and Lights at 2% of the total calculated electrical energy.

7.6 Lights

7.6.1 Types of lights

There are a total of **132 Lights in the premises and all of these are LED Lights.**

7.6.2 Floor-wise consumption analysis

The energy consumption of Lights is **2,333 kWh** of energy; the following graph shows the floor wise consumption. This section analysis constitutes all buildings as a single entity.

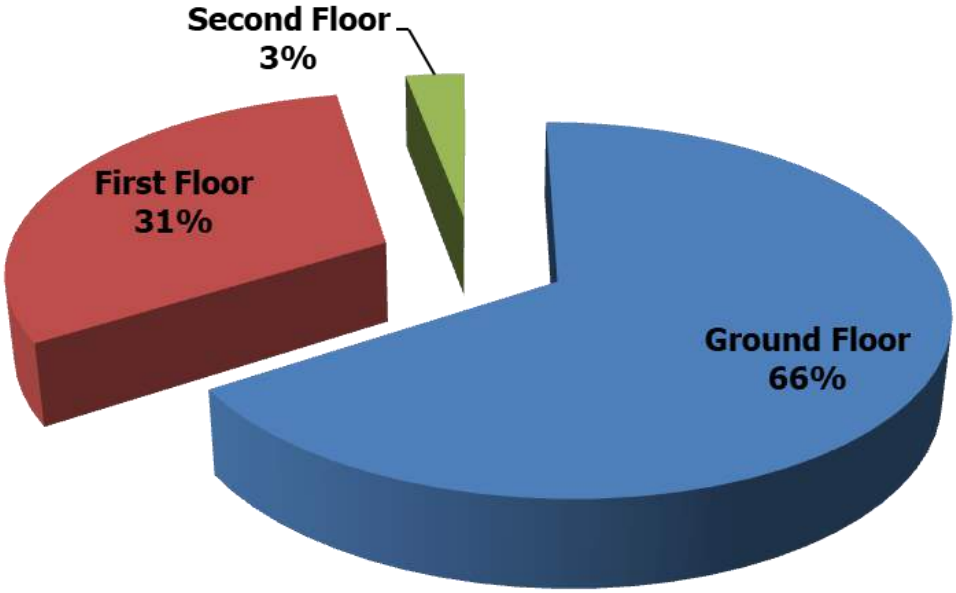


Figure 11: Energy consumed by Lights floor wise

The above analysis shows the Lights in the **Ground floor consumes the highest amount of energy of 1,538 kWh at 66%** while the **First floor consumes 725 kWh at 31%** and the **Second floor consumes 69 kWh at 3%**

7.6.3 Requirement of NAAC

7.6.3.1 Alternative Energy Initiative

Percentage of power requirement met by renewable energy sources

There are Solar Panels in premises, they generate up to 15 kWp of energy per month. It is a Solar Rooftop Power Plant with HP Make Electronic Single Phase Net-metering for PPA with MSEDCL. It consists of 3 kW Grid Tied Inverter (PCU) and 48 Modules, fixtures and minor wiring included. It was installed at a cost of Rs. 9,13,500/- with 5 years warranty. **100% of the energy produced is given back to the grid.**

7.6.3.2 Percentage of lighting power requirement met through LED bulbs

The premises has LED Lights contributing to 100%in terms of number and **100% of the power requirement** is met through the same.

7.6.4 Site investigation observations

Some of the points noticed are as follows:

1. All lights are in working conditions
2. Daily monitoring and check is done by the maintenance staff.
3. There was no fuse defect observed.

7.7 Fans

7.7.1 Types of fans

There are a total of **130 fans** in the premises. The following table shows the various types of fans in the premises.

S. No.	Type	Nos.
1	Ceiling fans	124
2	Exhaust fans	6
Total		**130**

Table 9: Summary of the types of fans in premises

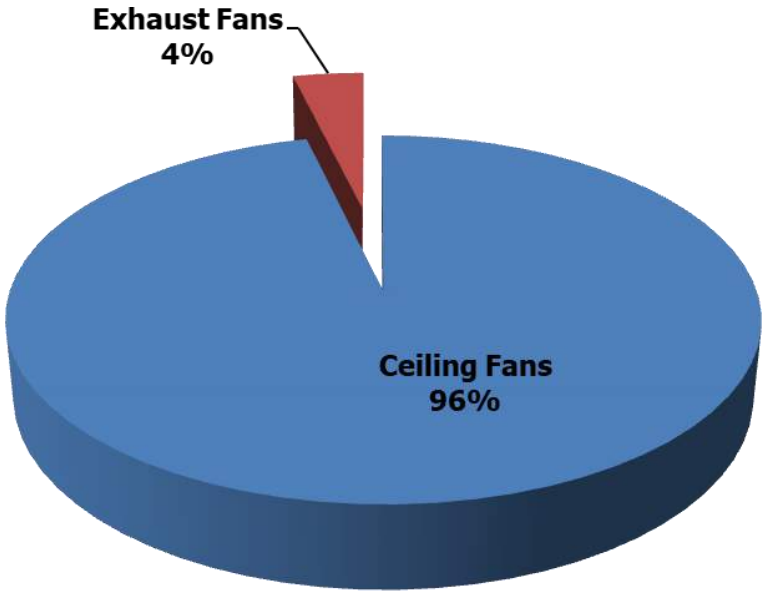


Figure 12: Energy consumed by Types of Fans in the premises based on the usage study

The analysis of the types of fans in premises shows **Ceiling fans consume 8,377 kWh at 96%** while the **Exhaust Fan consumes 325 kWh at 4%**

7.7.2 Floor-wise consumption analysis

The energy consumption of Fans is **8,701 kWh** of energy; the following graph shows the floor wise consumption. This section analysis constitutes all buildings as a single entity.

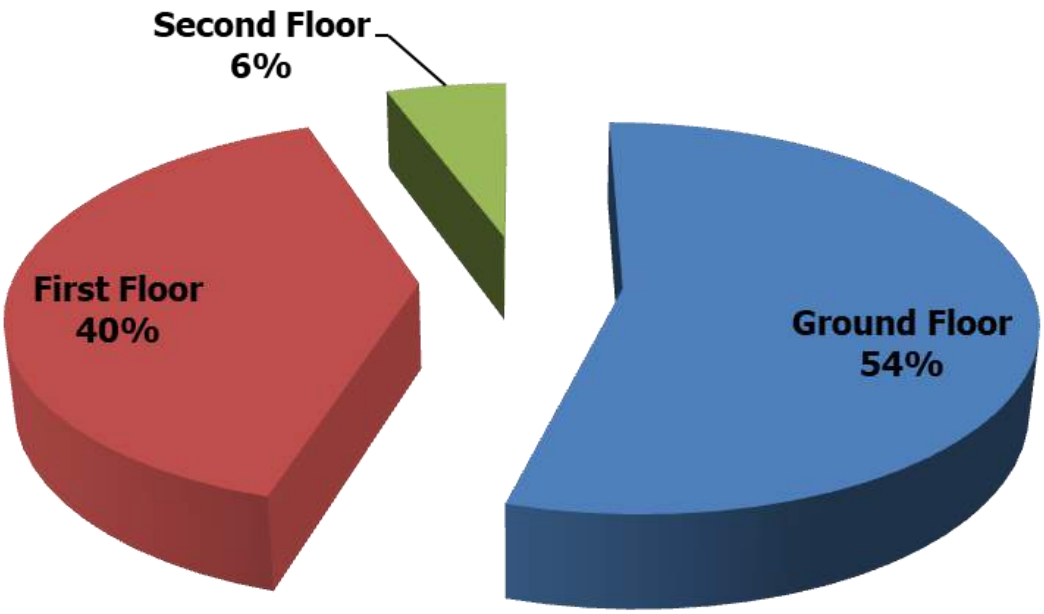


Figure 13: Energy consumed by Fans floor wise

The above analysis shows the Fans in the **Ground floor consumes the highest amount of energy of 4,745 kWh at 54%** while the **First floor consumes 3,468 kWh at 40% and the least amount of energy is consumed by Second floor which is 488 kWh at 6%**

7.7.3 Site investigation observations

Some of the points noticed are as follows:

1. All fans are in working conditions
2. Daily monitoring and check is done by the maintenance staff and admin staff in an excellent manner.

7.8 AC

There are no Air conditioners in the premises.

7.9 Equipment

7.9.1 Types of Equipment

There are a total of **16 types of equipment totalling to 227 in number** in the premises. The various types are mentioned in the table below.

S. No.	Name	Nos.
1	Amplifier	1
2	Aquaguard	2
3	Autoclave	1
4	LCD TV	1
5	Freezer	1
6	RO Machine	1
7	Sanitary Vending Machine	1
8	Water Bath machine	1
9	Xerox Machine	1
10	CCTV	38
11	Desktop Computer	145
12	LED TV	2
13	Oven	2
14	Printer	19
15	Projector	8
16	Water Motor	3
Total		**227**

Table 10: Types of equipment in the premises

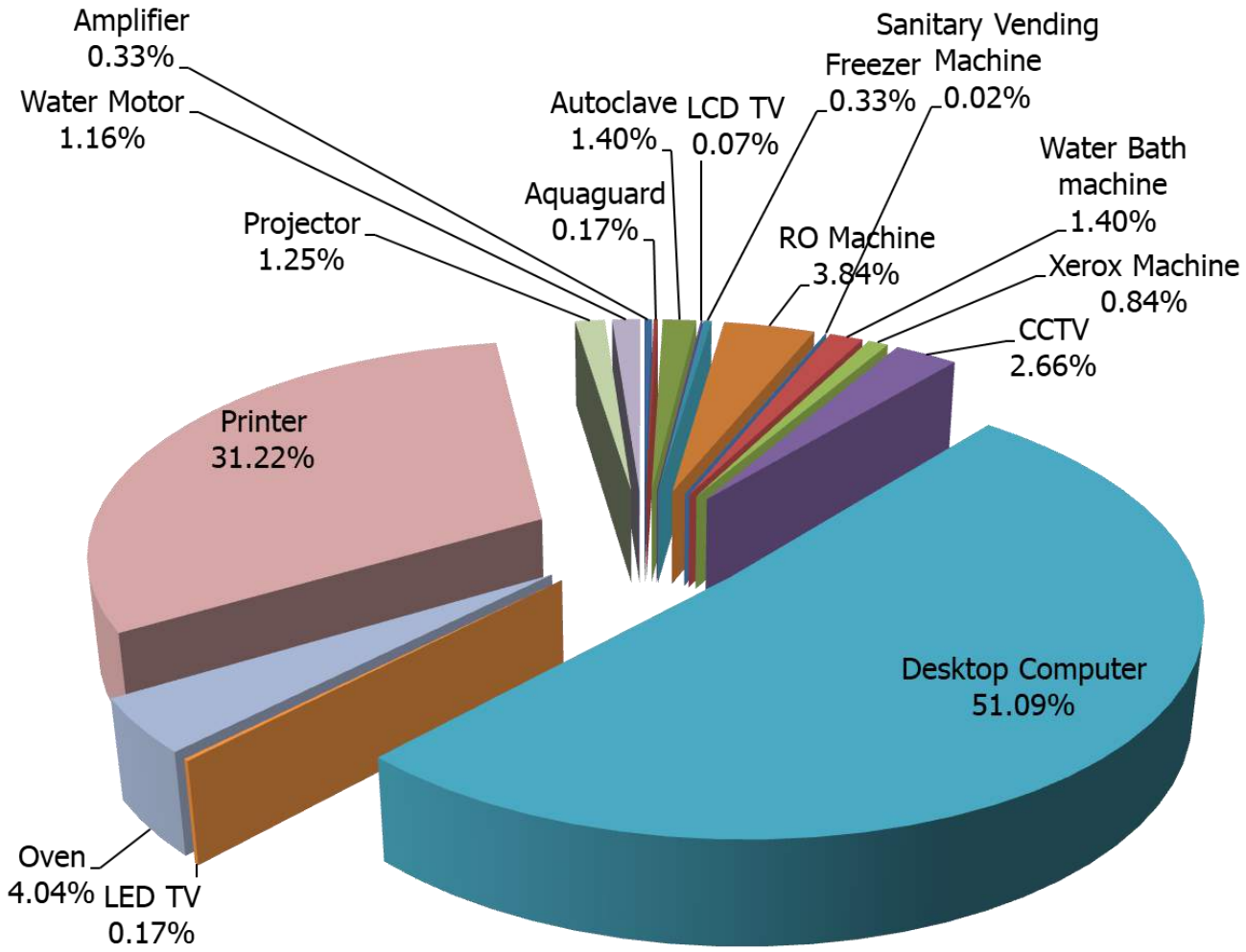


Figure 14: Summary of Energy consumed by Equipment in the premises

The above summary shows that **Desktop computer consumes more energy at 51.09%** while **Printer at 31.22%** the **Oven consumes 4.04%** and the **RO machine consumes 3.84%** these are maximum consumers as compared to other equipment. UPS and Inverter (when used for electrical consumption else it is a battery backup and does not require electricity as an equipment) are also one of the equipment but are excluded in this calculation.

7.9.2 Floor-wise consumption analysis

The energy consumption of Equipment is **96,268 kWh** of energy; the following graph shows the floor wise consumption.

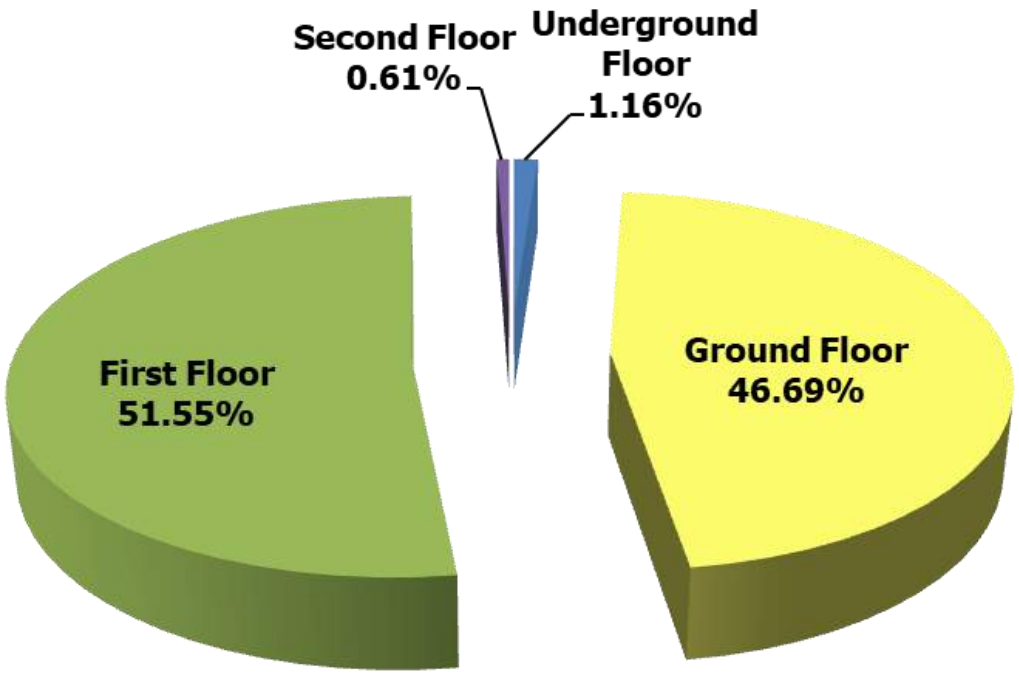


Figure 15: Energy consumed by Equipment floor wise

The above analysis shows the equipment in the **First floor consumes 49,627 kWh at 51.55%** while the **Ground floor consumes 44,943 kWh at 46.69%; the Underground floor (considering the water motor starters) consumes 1,114 kWh at 1.16%** and the **Second floor consumes 584 kWh at 0.61%**

7.9.3 Site investigation observations

Some of the points noticed are as follows:

1. All Equipments are in working conditions and Daily monitoring and check is done by the maintenance staff and admin staff in an excellent manner.
2. No defect was found in any equipment of electrical consumption.

7.10 Recommendations for a Sustainable Habitat

Over the time energy efficient appliances have been a boon not only to the energy saving parameters they adhere to but also the eco-friendly habits it helps to inculcate. The Institution such as Schools and Colleges are the best way to implement these initiatives. It creates awareness among the students at a young age. The Institutions also act as a symbol and representative of being an energy efficient premises.

Following the analysis we found are some of the suggestions which can be implemented for an energy efficient Institution. This would help in reduction of the current electrical consumption by a major percentage.

7.10.1 Fans

The current Fans are in proper working conditions and maintained well. The ceiling fans are in more quantity and consume at least 60W when in use. These should be replaced with energy efficient fans consuming 32W when in use.

The following graph shows a comparison of the current consumption and consumption of all **ceiling fans on all floors** if replaced with star rated appliance.

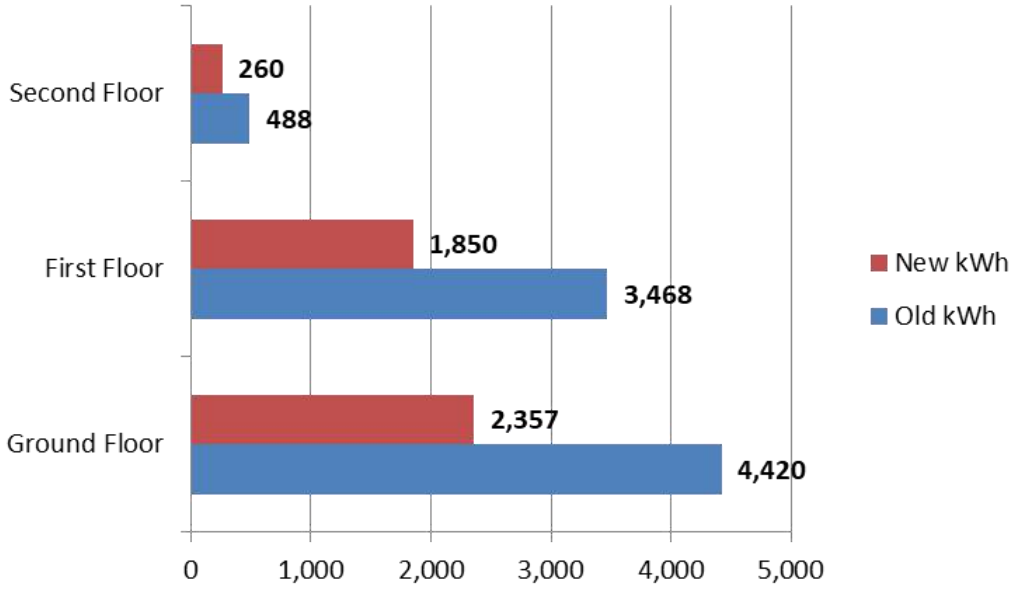


Figure 16: Analysis of current and new fans

The above analysis shows reduction of average of **47% reduction** in energy consumption if replaced with energy efficient appliance.

It will be suggested to either replace these now if College can have certain plans else the replacement can be done when fans get damaged or are not in working condition.

7.10.2 Equipment

Among all equipment it suggested to replace the desktop computers with laptops as this would be energy efficient. A normal desktop computer consumes on an average 250W and it is to be connected all time when it has to be used. On the contrary a laptop consumes 40W and has a battery backup which lasts up to 4 hours.

The following table shows a comparison of the current consumption and consumption of the **desktop computers** if replaced with laptops.

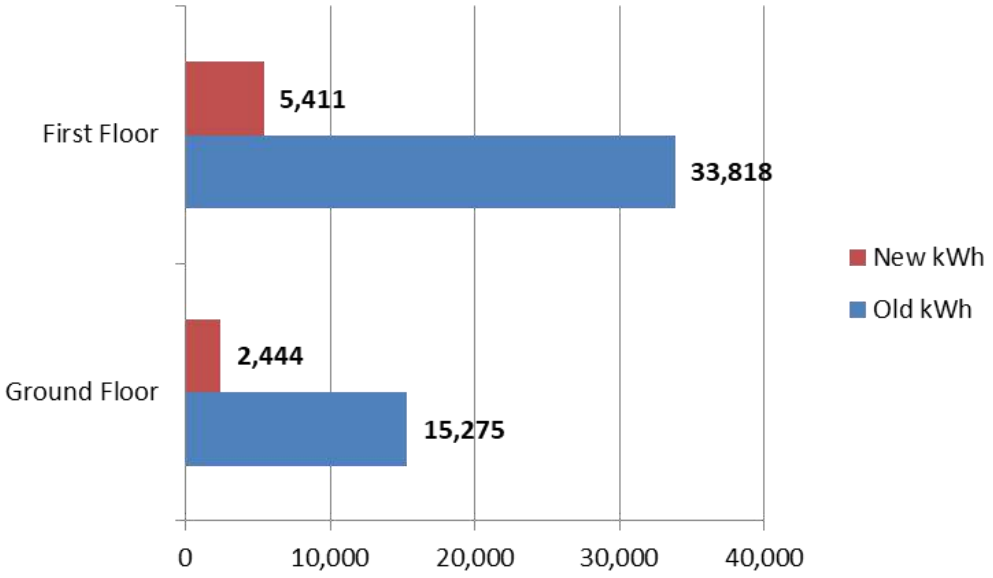


Figure 17: Analysis of current computers and new laptops

The above analysis shows reduction of average of **83% reduction** in energy consumption if replaced with energy efficient appliance.

It will be suggested to either replace these now if College can have certain plans else the replacement can be done when the devices get damaged or are not in working condition.

Tulsi Marketing

Solapur : 601, Chati Galli, Solapur - 413 002. Tel. : 0217 2324...
Sangli : 707/8, Ganpati Peth, Sangli 416416. Tel.: 0233 6604277
Bagalkot : 17-18, Municipal Complex, Mahaveer Road, Bagalkot-587 101.
Mail : tulsimarketing...@gmail.com

Date: 31-03-2018

To,
The Principal
Vidnyan Mahavidyalaya
SANGOLA -413307.

Respected Sir,

Sub: Completion report for installation of Rooftop GCRT Solar Power Plant- Regarding

We have successfully completed the installation of Rooftop GCRT Solar Power Plant of capacity 15 kWp.3 Phase, at your premises as per your purchase order.

All technical works related to the installation of Rooftop GCRT Solar Power Plant has been completed by us.

We take this opportunity to thank you personally, for your kind guidance during installation of Rooftop GCRT Solar Power Plant.

You are kindly requested to please release our balance payment against invoice(s) raised on you as per agreed terms of your purchase order.

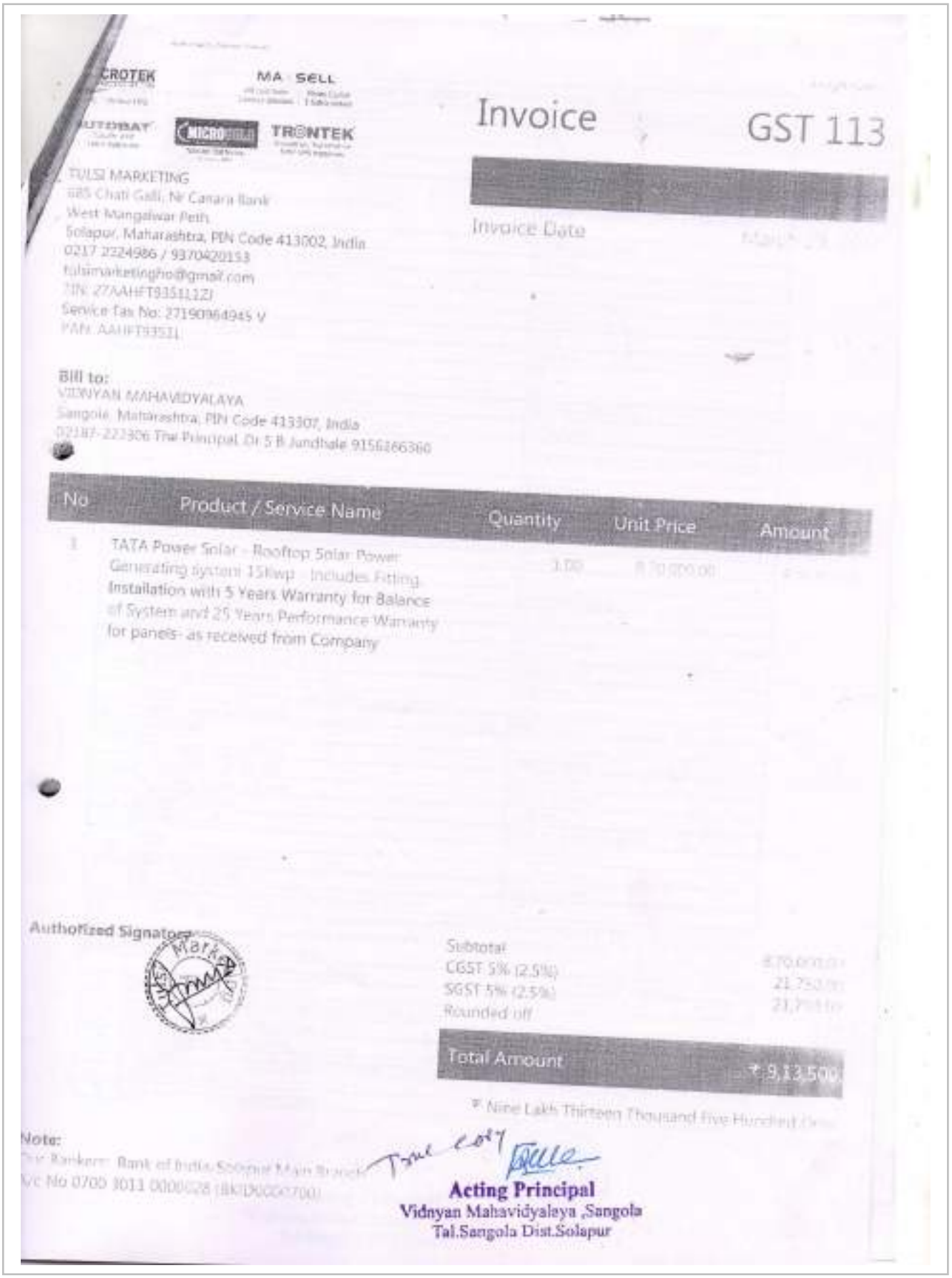
Thanking you
For **Tulsi Marketing**

Rajesh Teju – Partner
9370420153

C.C. to: The Manager,
Bank of Maharashtra
Sangola Branch, Sangola
For information please

True copy

Acting Principal
Vidnyan Mahavidyalaya ,Sangola
Tal.Sangola Dist.Solapur



CROTEK MA SELL

UTOBAT MICROTEK TRONTEK

Invoice GST 113

TULSI MARKETING
685 Chati Galli, Nr Canara Bank
West Mangalwar Peth
Solapur, Maharashtra, PIN Code 413002, India
0217 2324986 / 9370420153
tulsimarketingho@gmail.com
TIN: 27AAHFT9351J1ZJ
Service Tax No: 27190964945 V
PAN: AAHFT9351J

Invoice Date

Bill to:
VIDNYAN MAHAVIDYALAYA
Sangole, Maharashtra, PIN Code 413307, India
02187-222306 The Principal, Dr S B Jundhale 9156266360

No	Product / Service Name	Quantity	Unit Price	Amount
1	TATA Power Solar - Rooftop Solar Power Generating system 15Kwp - Includes Fitting, Installation with 5 Years Warranty for Balance of System and 25 Years Performance Warranty for panels- as received from Company	1.00	₹ 9,13,500.00	

Authorized Signatory

Subtotal
CGST 5% (2.5%)
SGST 5% (2.5%)
Rounded off

Total Amount ₹ 9,13,500

₹ Nine Lakh Thirteen Thousand Five Hundred Only

Note:
Our Bankers: Bank of India, Solapur Main Branch
A/c No 0705 3011 0000028 (IFSC BKID0000705)

True copy

Acting Principal
Vidnyan Mahavidyaleya ,Sangola
Tal.Sangola Dist.Solapur

Project Completion Report for Solar Power Plant		
S.No	Component	Observation
1	**Work Order No**	NIL
	Work Order Date	07/02/2018
2	**Category :- Govt. / Private Sector**	Educational Institute
	Site/ Location with Complete Address	**The Principal, Vidnyan Mahavidyalaya, SANGOLA 413307. Tal- Sangola Dist - Solapur**
	Longitude/ Latitude	17.4328, 75.1852
3	**Capacity of System Installed (kWp)**	15 KWp
4	**Specification of the Modules**	
	Type of modules(multi/mono)	Multi Crystalline
	Make of Modules	Tata Power Solar
	Year of Manufacturing	2017
	Wattage	325 Wp
	No of modules	48
	Module Efficiency	16.5
	No of series &Parallel combinations	4x12 No of Panels
	Tilt Angle of Modules	17° Approx
	IEC certificate (Enclose IEC Certificate)	IEC61730, IEC61215, IEC61701, IEC62716
	Whether imported or indigenous.	Indigenous
	RFID tag is pasted inside or outside	Inside
	Type of RFID	Laminated Inbuilt
5	**PCU**	
	Make	Goodwe
	Rating	15000 W
	Type of Charge controller/MPPT	Transformerless
	Capacity of inverter	15 KW
	Year of manufacturing	2017
	AC Output	400 V
	Whether hybrid or stand alone	Stand Alone
	Whether indigenous or imported	Imported
	(Enclose test certificate as per MNRE requirement)	Yes
	Input Voltage to Inverter	400 V
7	**Structures**	
	Tracking or non tracking	Non-Tracking
	Indigenous or Imported	Indigenous
8	**DC Cables Make and size**	KEI / 4 Sq MM
	Voltage of Cable	1100 VDC
9	**Distribution Box**	Both AC & DC Provided
	Make	Tata Power Solar
10	**Earting and Protections**	Yes, Provided
	Lightening Arrester	Yes, Provided
11	**Monitoring Mechanism for the Installed System**	N.A.

It is to certify that all the components / subsystems and materials including junction boxes, cables and distribution boards. Switches, circuit barkers used are as per MNRE / MEDA requirement and as per DPR submitted.

	Enclosures Details	No of Pages
1	Datasheet of Modules installed	2
2	System Connection Single Line Diagram of Installation	1
3	Technical Specifications of Solar PCU	2
4	IEC Certificates for Modules	4
5	Test Certificate for PCU as per MNRE Requirement.	4
6	Site Location Details	1
7	Solar Invertere Compliance Details	2

Date : 31-03-2018
Place

Acting Principal
Vidnyan Mahavidyalaya ,Sangola
Tal.Sangola Dist.Solapur

8. Towards a Healthy & Sustainable Institution

8.1 Inputs by Greenvio Solutions

Based on the analysis of the study of premises in addition to the recommendations provided in each section of Ecological, Water, Waste and Energy Audit the College can adopt the following strategies towards a Healthy and Sustainable Institution practices.

a) **Terrace farming -** There can be provision of terrace farming alongside the Canteen on Terrace and kitchen garden practices in a designated area of the open space this would enhance the biodiversity and be useful in training students and staff about the healthy practices and vegetables grown which would be used in Canteen. It helps in capacity building as well as the smaller steps taken have huge impacts when each student would adopt these practices in their homes or societies and grow kitchen garden, terrace garden there will be a long term benefit for the environment as a whole.

b) **Cutlery in the Canteen –** The regular plastic and steel plates, spoons used in Canteen can be replaced with eco-friendly and organic leaves, paper straw, disposable plates, edible spoons and tables made out of sugarcane waste or bamboo. This will be first of its kind initiative to be adopted and practiced thus also inculcating the healthy practices in students.

c) **Waste vio –** Stepping up a little further an initiative can be undertaken wherein College can tie up with an organisation and students can be encouraged to collect dry waste and electronic waste such as newspapers, old computers and others and hand over to organisation on a weekly or monthly basis thereby making a waste reduction approach in the community. This has benefits such as awareness, eco-friendly habits in becoming a responsible citizen.

8.2 Survey Results

An online survey was conducted to analyse the student and staff views about what changes according to you can be undertaken for Green audit improvement in College premises and activity, some of the key responses are listed below. Whereas many responses **stated there were no changes requires because the present practices are excellent.**

- Nothing
- No changes
- No suggestions

Some of the changes suggested are as follows

- Plant trees like Banyan and *Peepal* that release more oxygen.
- Motivate the plantation of trees and clean environment
- Conduct Environmental awareness programmes.

However, it should be noted that the College has taken up multiple initiatives and because of Pandemic the students have not practically visited the premises so many of these points are not mandatory at the moment.

Room no-63, multi-purpose hall

Room no. 9 English dept. 10:56 AM

Solar plant 9:51 AM

Room No 48, Phy B.Sc.III Lab & Lecture Hall 10:12 AM

ROOM NO.7 N.S.S

9. References

1. Uniform Plumbing Code – India, 2008
2. IGBC Green Existing Buildings – Operation & Maintenance (O&M) Rating system, Pilot version, Abridged Reference Guide, April 2013
3. IGBC Green Landscape Rating system, March 2013
4. BOMA Canada Waste Auditing Guide, Best Environmental Standards, BOMA BEST - Canada
5. Climate data https://en.climate-data.org/asia/india/maharashtra/solapur-2803/
6. Used only for understanding Universal design - Universal accessibility Guidelines for Pedestrian, Non-motorizes vehicle and Public Transport Infrastructure – Report guidelines by Samarthyam (National centre for Accessible Environments) – an initiative supported by Shakti Sustainable Energy Foundation.

7.1.6 - Quality audits on environment and energy are regularly undertaken by the institution -2022-23

Documents

1) Reports on environment and energy audits submitted by the auditing agency

2) Letter of appreciation

Green Audit

2019-20 & 2020-21

AUDIT REPORT

Includes Environment, Energy and Green Audit

Studied for

Sangola Taluka Shetkari

Shikshan Prasarak Mandal Sangola's

Vidnyan Mahavidyalaya Sangola

Taluka Sangola, District Solapur

Pincode 413 307 (Maharashtra)

Analysed by

Greenvio Solutions

27 January 2022

Background reference image Nic Y C Gua on unsplash

Disclaimer

Green Audit Team has prepared this report for **Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola's Vidnyan Mahavidyalaya Sangola** located at *Taluka Sangola, District Solapur, Pincode 413 307 (Maharashtra)* based on input data submitted by the College analysed by the team to the best of their abilities.

The details have been consolidated and thoroughly studied as per the various guidelines for Green Buildings available in National Standards, the report has thereby been generated based on comparative analysis of the existing facilities and the benchmarks. The suggestions derived as a result of the inspection and research as per inputs which would further enhance and develop a Healthy and Sustainable Institution.

These can be implemented phase wise or as a whole warranty or undertaking, express or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

The audit is a thorough study based on the inventory and on-site investigation of data collected over a period of time and should not be used for any legal action. This is the property of Greenvio Solutions and should not be copied.

Greenvio Solutions

Developing Healthy and Sustainable Environments

We are an Environmental and Architectural Design Consultancy firm

Sustainable Academe is our department for conducting Audits

Palghar District, Maharashtra- 401208

sustainableacademe@gmail.com

Introduction

About the Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola

It was established in 23-Sep-1991, with **the aim of giving availability and facility of education to socially backward society,** to Bahujan society including **Harijan, Girijan, farmers, labours and socially deprived**. Receiving immense progress in the region of Sangola Taluka since its establishment, the Sanstha has started High School Department, Professional Courses of 10+2 Section and Vidnyan Mahavidyalay.

Assessment of the College

Affiliations - The College is affiliated to Punyshlok Ahilyadevi Holkar Solapur University.

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

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

Cycle	First	Second	Third
CGPA	0	2.76	2.24
Grade	B	B	B
Year	2004	2012	2018

Table 1: NAAC Accreditation details of the College

The college is due to enter its Fourth cycle of NAAC soon.

Total Institute Area & College Building Spread Area

The **total site area is 7 acres** and **total built-up area is 41,652.34 sq. ft.** for approx. 1,599 footfalls.

Environment Audit

The details of the plantations in the premises is as follows:

S.No	Botanical Name	Vernacular name	Family	Nos
Plants found in the overall premises				
1	*Cocus Nucifera*	Cocount	Arecaceae	1
2	*Emblica Officinalis*	Avala	Euphorbiaceae	1
3	*Cycas Revolute*	Cycas	Cycadacea	2
4	*Jatropha Curcas*	Yearand	Euphorbiaceae	4
5	*Murrya Koenigii*	Kadipatta	Rutaceae	2
6	*Bougainvillea Glabra*	Bougainvel	Nyctginaceae	11
7	*Polyalthia Longifolia*	Ashok	Ceasalpinaceae	17
8	*Hyophorbegeni Caulis*	Bottle palm	Aracaceae	9
9	*Azadirachta Indica*	Neem	Meliaceae	24
10	*Sennasulfurea*	Mothatarwad	Ceasalpinaceae	2
11	*Grevillea Robusta*	Silver oak	Protaceae	3
12	*Hibiscus Trionum*	Trionum	Malvaceae	3
13	*Bauhinia Variegate*	Kanchan	Fabacaeae	3
14	*Sesbania Grandiflora*	Shevari	Fabacaeae	1
15	*Platycladus Orientalis*	More pankhi	Cupressaceae	3
16	*Catharanthus Roseus*	Sadafuli	Apocynaceae	2
17	*Ficus Racemosa*	Umber	Moraceae	11
18	*Tecoma Rosea*	Ghantiful	Bignoniaceae	15
19	*Tecoma Campensis*	Ghantiful	Bignoniaceae	15
20	*Tabernaemontana Divaricata*	Tagar(Ananta)	Apocynaceae	25
21	*Pandanus Variegated*	pandan	Pandanaceae	9
22	*Acalypha Hispida*	Kuppikhokali	Euphorbiaceae	12
23	*Acalypha Alba*	Kuppikhokali	Euphorbiaceae	15
24	*Nerium Indicum*	Kanher	Apocynaceae	18
25	*Lilium (Lily)*		Lilieae	9

26	*Codiaeum Variegatum*	Croton	Euphorbiaceae	4
27	*Tinospora Cordifolia*	Gulvel	Menispermaceae	2
28	*Jatropa Integerrima*	Peregrine	Euphorbiaceae	1
29	*Delonix Regia*	Gulmohar	Fabaceae	7
30	*Sansevieria Trifasciata*	Sanke plant	Asparagaceae	12
31	*Euphorbia Macrocarpus*	Lady's slipper	Euphorbiaceae	5
32	*Wodyetia Bifurcate*	Foxtail palm	Arecaceae	2
34	*Phoenix Dactylifera*	Palm	Arecaceae	2
35	*Hibiscus Rosa-Sinensis*	Jaswand	Malvaceae	2
36	*Jacaranda Mimosifolia*	Nilmohor	Bignoniaceae	1
37	*Samanea Saman*	Rain Tree	Fabaceae	1
38	*Tabebuia Rosea*	Pink poui	Bignoniaceae	1
39	*Ficus Benjamina*	Weeping fig	Moraceae	1
40	*Nephrolepis Exaltata*	Sword fern	Nephrolepidaceae	1
41	*Dracaena Marginata*	Dragon tree	Asparagaceae	2
42	*Withania Somnifera*	Ashwgandha	Solanaceae	2
43	*Bismarckia Noblis*	Fan Palm	Arecaceae	2
Plants found in garden and shaded net area				
44	*Durantaerecta*	Golden duranda	Verbenaceae	5
45	*Annonareticulata*	Custard Srapple	Annonaceae	2
46	*Jovibarbaheuffelii*	Cactus	Cactaceae	4
47	*Bryophyllumpinnatum*	Panfuti	Crassulanceae	5
48	*Aloe Vera*	korfad	Liliaceae	5
49	*Abeliatriflora*	Sher	Caprifoliaceae	1
50	*Abelmoschusmanihot*	Allu	Malvaceae	1
51	*Aspidiumspinulosum*	Fern	Osmundaceae	2
52	*Platycladusorientalis*	Morpankhi	Cupressacae	2
53	*Hibiscus Trionum*	Trionum	Malavaceae	4
54	*Polysciasfruticosa*	Arerlia	Araliaceae	5
55	*Thamustinctorius*	Dressigna	Asteraceae	1
56	*Chrysalidocarpuslutescens*	Areca palm	Arecaceae	6

57	*Asparagus Racemosus*	Shatavari	Asparagaceae	1
58	*Psidiumguajava*	Peru	Rubiaceae	1
59	*Sesbaniagrandiflora*	Shevari	Fabaceae	10
60	*Calotropisgigantea*	Rui	Asclepiadaceae	1
61	*Ficusracemosa*	Umber	Moraceae	2
62	*Neriumindicum*	Kanher	Apocynaceae	2
63	*Tecomarosea*	Ghantiful	Bignoniaceae	1
64	*Tecomacampensis*	Ghantiful	Bignoniaceae	1
65	*Acalyphahispida*	Kuppikhokali	Euphorbiaceae	2
66	*Acalypha Alba*	Kuppikhokali	Euphorbiaceae	1
67	*Jatropacurcus*	Mogli	Euphorbiaceae	1
68	*Hyophorbegenicaulis*	Bottle palm	Aracaceae	3
69	*Cocusnucifera*	Cocount	Arecaceae	1
70	*Rosa Centifolia*	Gulab	Rosaceae	1
71	*Rosa Indica*	Gulab	Rosaceae	2
72	*Syzygiumcumini*	Jambul	Myrtaceae	1
73	*Ocimumsantum*	Tulas	Lamiaceae	7
74	*Hibiscus Rosa-Sinensis*	Jaswand	Malvaceae	1
75	*Hamelia Patens*	Firebush	Rubiaceae	1
76	*Plumeriarubra*	Red frangipani	Apocynaceae	1
78	*Plumeria Alba*	White frangipani	Apocyanaceae	1

Table 2: List of Trees available in premises

Green practices audit

The Institution has undertaken the following initiatives through **excellent efforts** towards save environment measures.

- **Health camp**
- **Blood donation camp**
- **gender sensitisation**
- **Tree plantation**
- **Construction of *Vanrai Bandhra* (Check dam)**
- ***Swatch Bharat Abiyan***
- **National Technical Day celebrations**

Due to pandemic situation multiple activities could not be undertaken.

Energy Audit

The following analysis is combined for entire premises taking into considerations the duration before pandemic to understand the consumption pattern as post pandemic the premises is used only for a few hours.

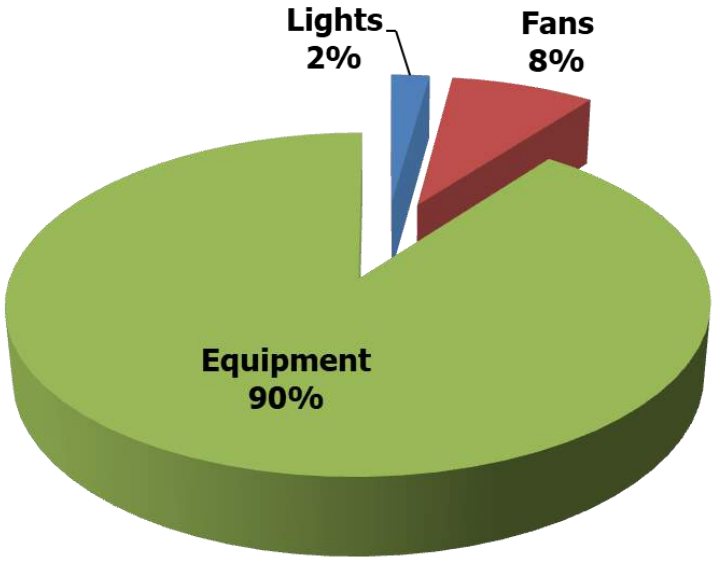


Figure 1: Summary of the Calculated Electrical Consumption as per inventory

The above graph shows that Equipment consumes 90% followed by Fans at 8% and Lights at 2% of the total calculated electrical energy.

Date: 19 March 2022
Ref no: LA/19/03/30

Letter of Appreciation

For

Initiating steps towards water and waste management

As observed during the Audit Process

Awarded to

Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola

Vidnyan Mahavidyalaya Sangola

Taluka Sangola, District Solapur, Pincode 413 307 (Maharashtra)

With reference to the above cited subject we appreciate the efforts of the College in **initiating steps towards water and waste management.**

We hope the College continues similar efforts. As per our observations there is scope for improvement which the college can implement in future.

Best regards,

Ar. Nahida Shaikh
Project Head and Green Building Consultant
Sustainable Academe
Sustainability Department of Greenvio Solutions, Naigaon
An environment Design and Consultancy developing Healthy and Sustainable Environments
sustainableacademe@gmail.com I **greenviosolutions@gmail.com**

Green Audit

2019-20 & 2020-21

AUDIT REPORT

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Background reference image Nic Y C Gua on unsplash

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The Report is prepared by the Team of Greenvio Solutions under their brand and department – Sustainable Academe as Consultancy firm along with Ar. Nahida Shaikh as an Accredited Green Building Professional.

Greenvio Solutions

Developing Healthy and Sustainable Environments

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Sustainable Academe is our department for conducting Audits

Palghar District, Maharashtra- 401208

sustainableacademe@gmail.com

Acknowledgement

Green Audit Assessment Team thanks the **Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola's Vidnyan Mahavidyalaya Sangola** for assigning this important work of Green Audit. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are due to **Hon'ble Mr. Khatkale Ramchandra Shankar,** Acting President; **Mr. Shinde Vitthalrao Sakharam,** Secretary; **Mr. Jankar Babanrao Vitthal,** Director; **Mr. Deshmukh Chandrakant Ganapatrao,** Director; **Dr. Deshmukh Aniket Chandrakant,** Director; **Dr. Shinde Ashokrao Vitthal,** Director; **Mr. Khatkale Dipak Ramchandra,** Director; **Mr. Kumathekar Audhut Chandrakant,** Director; **Mr. Jankar Jayant Babanrao,** Director and everyone from the Management.

Our heartfelt thanks to Principal and Chairman of the entire process **Dr. Raghunath Appa Fule, A/C Principal** for the valuable inputs.

We are also thankful to College's Task force the faculty members who have collected data required for the audit **Dr. Suryavanshi Rajendra Shankar,** Green Audit Coordinator **(Special mention for the excellent co-operation by Madam in entire process);** The Green Audit committee members **Dr. Manoj Waghmode and Dr. Sushilkumar Randive, Dr. Mahadevi Jundale** and the IQAC Co-coordinator **Dr. Dhasade Shankar Sangappa** for the inventory and data collection.

We highly appreciate the assistance of **Mr. S. B. Thomare,** Office superintendent; **Mr. V. B. Gusale,** Lab attendant and **the entire Admin, Teaching and Non-teaching staff** for their support while collecting the data.

Sustainable Academe

Brand of Greenvio Solutions, Palghar District, Maharashtra- 401208

Contents

1. Introduction

1.1 About the Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola

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The Sanstha and the College have the following aim and objectives:

1. To open the Schools & Colleges in order to give Primary, Secondary, Higher Secondary, Vocational, Technical Education also Higher and Professional Education **to the students especially from the rural area.**
2. To open the Montessori's, laboratories ,technical training centres, libraries and hostel for boys and girls, in order to **help them to complete education, upbringing them in the main stream of society and to create an interest and awareness about education**
3. To provide them scholarships & other facilities in order **to develop all round personality of students and to develop their mental, physical health and environment among students.**
4. To **give the guidance & information to students to people from rural area by the experts** from academic, social, political, cultural, agriculture and economic fields.
5. To create volunteers and social workers and **to train them in order to develop the rural area in all fields.**
6. This Institution does not believe in any caste, religion and discrimination all students from any caste are admitted in the college, especially **students from reserve category are admitted with priority.**
7. This is **a Non-Political Institution.**

1.2 Vision and Mission Statement of College

Vision – The College has the following Vision:

- To provide quality higher education to the students from socio-economically background and the poor family, and friendly atmosphere for teaching, learning and research process.
- To shape the students in becoming globally competent, skilled and socially oriented human power.

Mission - The College has the following Mission:

- To provide the facilities of education to the students who are from economically weaker section of the society from deprived lot.
- To make the students aware of human ethics, culture and heritage.
- To create the better manpower for the nation.

1.3 Institutions in the premises

The Premises is situated amidst the landscape serene Taluka of Sangola district with close proximity recreational and amenities such Hospital, Fire Station and much more. During the entire day schedule with smooth transition of internal student traffic management which is highly commendable.

It was established in 1993 as a single building, over the time it has grown into multiple blocks prevailing in the premises and has undergone multiple expansion activities. The College has the following goals:

- **To help the government to broaden view of higher education.**
- **Knowledge based development.**
- **Inclusive growth for socio-economic changes and sustainable development.**

The aim of the College is to continuously enhance the teaching methods in order to provide students with an opportunity for their all-round development. It also strives for excellence in academics and makes an effort to induce passion for learning along with the inspiration for decisive thinking and assessment, thereby helping them to become the best professionals in their chosen careers.

The institution offers the following courses affiliated to Punyshlok Ahilyadevi Holkar Solapur University.

- **Graduation** – It offers the following Undergraduate courses.
    - Bachelor of Arts (B.A.)
    - Bachelor of Science (B. Sc) General
    - Bachelor of Science (Entire Computer Science (E.C.S.))
    - Bachelor of Computer Applications (B.C.A.)
- **Post-Graduation** – It offers the following Post Graduation courses.
    - Masters of Arts (M.A. in English, History)
    - Masters of Science in Computer Science
- **Post-doctoral courses -** It offers the PhD or DPhil course in History.
- **Short-Term Courses –** It offers Dept. Related Self-Financed Courses.
    - Domestic appliances and its maintenance
    - Analysis of soil and water
    - Food Processing
    - Hematological Analysis
    - Programming in C++
    - Hardware Maintenance
- **Certificate courses –** It offers the following Certificate Courses.
    - Spoken English
    - Museology
    - Modi script
    - Brahmi script

The College aims at training young women and men to be competent, committed and compassionate, and lead in all walks of life.

1.4 Assessment of the College

Affiliations - The College is affiliated to Punyshlok Ahilyadevi Holkar Solapur University.

Certification – The institute has received the following Certifications

- ISO
- NIRF
- AISHE
- NBA/ Quality Audit

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

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

Cycle	First	Second	Third
CGPA	0	2.76	2.24
Grade	B	B	B
Year	2004	2012	2018

Table 1: NAAC Accreditation details of the College

The college is due to enter its Fourth cycle of NAAC soon.

1.6 Achievements of the College

The college has a tremendous track record of excellence in Built form and educational services provided, below are some of the achievements of the prestigious Institute.

1. The **College has participated in the program by Govt/ of Maharashtra and received Participation Certificate for the same.**
2. **Asst. Professor V. M. Pawar received the State level award Aadarsh Seva Sanaman Purasakar (Ideal service Honours) in 2020.**
3. **Asst. Professor V. M. Pawar received the Best Paper Presentation Award in 2020.**

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
Vidnyan Mahavidyalaya
Tal. Sangola, Dist. Solapur, affiliated to Solapur University, Maharashtra as
Accredited
with CGPA of 2.24 on seven point scale
at B grade
valid up to September 25, 2023

Date : September 26, 2018

Director

Acting Principal
Vidnyan Mahavidyalaya ,Sangola
Tal.Sangola Dist.Solapur

BCSC/32/RAR/MHCOGN11459

महाराष्ट्र शासन

सोलापूर वन विभाग, सोलापूर

वनवृत्त पुणे

सहभागिता प्रमाणपत्र

प्रमाणित करण्यात येते की, मुख्याध्यापक / प्राचार्य विज्ञान महाविद्यालय, सांगोला

तालुका सांगोला जिल्हा- सोलापूर येथील विद्यार्थ्यांनी १ ऑक्टोबर ते ७ ऑक्टोबर, वनजीव सप्ताह निमित्त सोलापूर वनविभागाकडून आयोजित करण्यात आलेल्या जिल्हास्तरीय निबंध स्पर्धा / चित्रकला स्पर्धा मध्ये उत्स्फूर्तपणे सहभाग नोंदविला.

सबब आपल्या शाळेस / कनिष्ठ महाविद्यालयास हे सहभागिता प्रमाणपत्र प्रदान करण्यात येत आहे.

(प्र. ह. खडसे)
उप वनसंरक्षक
सोलापूर वन विभाग, सोलापूर

स्थळ : सोलापूर
दिनांक : ०७ ऑक्टोबर २०१९

प्रभारी प्राचार्य
विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

2. Institution overview

2.1 Populace analysis for Academic year 2019-20

2.1.1 Students data

The student data (shared by the College) shows there were a total of **802 Girl and 808 Boys** students and a total of **1,610 students**.

2.1.2 Staff data

Type	Male	Female	Total
Teaching staff	29	2	31
Non-Teaching staff	14	1	15
Total	**43**	**3**	**46**

Table 2: Staff data of the Institution for 2019-20

The staff data shows the premises had a total of **46** staff members.

2.2 Populace analysis for Academic year 2020-21

2.2.1 Students data

The student data (shared by the College) shows there were a total of **712 Girl and 841 Boys** students and a total of **1,553 students**.

2.2.2 Staff data

Type	Male	Female	Total
Admin staff	29	2	31
Teaching staff	14	1	15
Total	**43**	**3**	**46**

Table 3: Staff data of the Institution for 2020-21

The staff data shows the premises had a total of **46** staff members.

2.2 Site analysis

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

- **Location -** The Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola's Vidnyan Mahavidyalaya Sangola located at Taluka Sangola, District Solapur, Pincode 413 307 (Maharashtra) is close to the Sangola-Vita Road and falls under the Sangola Municipal Corporation of Solapur district in the Indian state of Maharashtra.
- **Neighbourhood context -** The premises is surrounding by Residential areas on the immediate surroundings of the site. The premises is situated amidst the mixed land use (A combination of Residential, Commercial, administrative Built-up spaces) on all sides.
- **Natural physical features –** The premises includes a rich biodiversity and adequate number of plants in the adjacent open space.
- **Manmade features –** The premises is situated in a rural area amidst huge open land areas with close proximity to all necessary amenities. The materials used for construction are RCC and the landscaping includes natural trees as well as potted plants.
- **Circulation –** There is a smooth transition of pedestrian traffic inside the premises due to the large entrance gate and the huge open space where vehicles of students and staff is parked.
- **Climate –** As the College falls under Solapur District, the climate here is tropical. The summers here have a good deal of rainfall, while the winters have very little. This location is classified as Aw by Köppen and Geiger. In Solapur, the average annual temperature is 27.3 °C | 81.2 °F. About 835 mm | 32.9 inch of precipitation falls annually.

(Source: https://en.climate-data.org/asia/india/maharashtra/solapur-2803/)

2.3 Total Institute Area & College Building Spread Area

The **total site area is 7 acres** and **total built-up area is 41,652.34 sq. ft.** for approx. 1,599 footfalls.

2.4 Institute Infrastructure

2.4.1 Establishment

The building was established in 1991. The Building is a Reinforced Cement Concrete (RCC) framework building. **Overall the Infrastructure of the Building is excellent in terms of the Architecture Design and Green Building Design. The Premises covers almost all the requirements for a Green Habitat and is one of its kind set up pretty close to nature.**

2.4.2 Spatial Organisation

The overall ambience of the College is warm and inviting. The classrooms and other spaces have ample natural ventilation in the form of clear glass windows with fresh air ventilation. The architecture of the building is quite well designed. The colour palette not just helps the building to stand out but also provides an Institutional arena. It balances with the local architecture with the natural landscapes of huge coconut trees all around. The design emphasis on providing calmness to the built form and gradually merges with the serene landscape.

There are no false ceilings in the premises. The floor to floor height is between 10 to 12 feet. There are no lifts in the premises. There are provisions for amenities such as Library and Restrooms. The room-wise details are mentioned below:

S. No	Room No.	Room Name	Floor
1	1	Library (Grant)	Ground Floor
2	2	Library (N- Grant)	Ground Floor
3	3	Reading Room - Boys	Ground Floor
4	4	Reading Room - Boys	Ground Floor

5	5	Reading Room - Girls	Ground Floor
6	6	Reading Room - Girls	Ground Floor
7	7	NSS	Ground Floor
8	8	History	Ground Floor
9	9	English	Ground Floor
10	10	Principal Cabin	Ground Floor
11	11	Stock Room	Ground Floor
12	12	Office	Ground Floor
13	13	Staff Room	Ground Floor
14		Porch	Ground Floor
15	14	Guest Room	Ground Floor
16	15	Gymkhana	Ground Floor
17	16	Class Room	Ground Floor
18	17	Class Room	Ground Floor
19	18	Class Room	Ground Floor
20	19	Class Room	Ground Floor
21	20	Chemistry Lab 1	Ground Floor
22	20	Chemistry Lab 2	Ground Floor
23	21	Chemistry Staffroom	Ground Floor
24		Store Room	Ground Floor
25		NCC	Ground Floor
26	70	Canteen	Ground Floor
27	37	Computer Lab	First Floor
28	38	Computer Lab	First Floor
29	39	Electronics Lab	First Floor
30	40	Computer Lab	First Floor
31	41	IQAC Room	First Floor

32	42	Staffroom (Non-grant)	First Floor
33	43	Computer Lab	First Floor
34	44	Classroom	First Floor
35	45	Classroom	First Floor
36	46	Statistics	First Floor
37	47	Mathematics	First Floor
38	48	Physics	First Floor
39	49	Geography	First Floor
40	50	Physics (Dark room)	First Floor
41	51	Physics	First Floor
42	52	Botany	First Floor
43	53	Botany	First Floor
44	54	Zoology	First Floor
45	55	Zoology	First Floor
46	62	Multipurpose Hall	Second Floor
47	63	Classroom	Second Floor
48	64	Classroom	Second Floor
49	65	Classroom	Second Floor
50	66	Classroom	Second Floor
51	67	Classroom	Second Floor
52	68	Classroom	Second Floor
53	69	Classroom	Second Floor

Table 4: Room-wise space details

2.4.3 Fire Safety

When the building was constructed Fire fighting norms and permission from Chief Fire Officer was not in practice. However, the Institution has taken care for adequate fire safety measures to be adopted. Each floor has an open staircase without any barriers

for fire safety measures. These staircases are free of any kind of storage or combustible material. The windows in each classroom are at a low height with fresh air and natural light thereby adding to ample ventilation throughout the day. The College should adopt additional fire safety practices such as fire hydrant and others. The current facilities are quite well maintained.

2.4.4 Operation and Maintenance of the premises

The interview session with the staff regarding the operation and working hours is summarised in the table. The Institutions are open Monday to Saturday for full day except every Saturday is half day only for Science laboratory and admin. Sunday is an off for all. The operating hours and days are as follows as the College runs in two shifts.

S. No.	Section	Spaces	Time	Hours / day	Days in a year
1	Main Institutional College	Student areas and Teaching faculty	7:45 a.m. to 3:15 p.m.	7.5	260
2	General areas	Admin areas and library, Passage, staircase, toilet	7:30 a.m. to 4:00 p.m.	8.5	280

Table 5: Schedule of the timings of the premises

3. Green Audit

3.1 About the Green Audit

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

3.2 Analysis for the Green Audit

The procedure included detailed verification for the following:

Energy Audit

- Analysis of the Lights, Fans, AC, Equipment
- Renewable energy
- Scope for reducing the current energy bills if any
- Improvement in the thermal comfort of the premises

Water Audit

- Analysis of the current water consumption of premises
- Scope to include Rain water harvesting and Waste water treatment in premises

Waste Audit

- Current waste produced, its segregation and usage
- Strategies to be adopted for waste management and awareness

Environmental Audit

- Analysis of the current landscape + hardscape of premises
- Analysis of the flora and fauna of premises
- Strategies adopted at present to enhance vegetation
- Measures that can be adopted for ecological improvement of premises

3.3 Strategy adopted for conducting Green Audit

The strategies included data collection from admin department, actual inventory, investigation to check the operation and maintenance, analysis of the data collected and preparation of the Report.

3.4 Timeline of the activities for Green Audit

- 28 June 2021 – Discussion with the College
- 20 July 2021 - Initiation by the College
- 23 November 2021 – Student and Staff survey by College
- 23 December 2021 – Data collection completed by College
- 27 January 2022 – Submission of the Report

Ecological (Environment) Audit

Background reference image Yugal Shrivastava on pexels

Greenvio Solutions

4. Ecological (Environmental) Audit

Environment is an essential part for human survival. We co-exist with the environment and it cannot be termed as a separate entity. The Ecological audit helps to understand the flora, fauna that exists and steps that can be taken to improve the same. To denote if there are problems related to sound in and around the surrounding. In terms of the carbon footprint it helps in keeping a tab on the eco-friendly habits incorporated by the inhabitants of the premises. Health today is the topmost priority, a general understanding of the initiatives undertaken along with sufficient hygiene practices adopted. Universal design is applicable to all built and unbuilt spaces. The premises needs to have facilities for students who are specially abled alike.

As part of our study we could state that the Institution has developed eco-friendly practices and sustainable solutions which are well reflected in the rich biodiversity of the Premises. Being situated near the city and in the beautiful area of Sangola district the appreciation space towards the main entrance provide a welcoming approach to the College. It has an equal balance of landscape and built space thus providing an enriching arena to the students.

4.1 Open Spaces

There is a beautiful balance of natural and open spaces in the premise and the open/ vegetation spaces are balanced overall. The ground is used by students at present for sports and cultural gatherings. The huge ground is commonly used by all the 32 Buildings in the premise. The design on the entire is such that the landscape and softscape spaces are very well oriented and located thus being extremely useful to Institutions in the site. **There are provisions for natural plantations which have enhanced thebeauty of the space.**

There adequate Maintenance staff allotted for the open spaces and they have done an excellence job in terms of the duty allotted. The infrastructure committee too is involved in this process. The traditional tap and pipe facility is adopted for watering and the college has taken special provisions for the same. The spaces are watered daily insummer. T**he efforts to maintain the existing space are commendable.**

4.1.1 Flora analysis

A) Plants and Trees

The trees constitute the maximum percentage out of all the varieties of plantations in premises and available in a **total of 350 numbers**. The list is as follows:

S.No	Botanical Name	Vernacular name	Family	Nos
Plants found in the overall premises				
1	*Cocus Nucifera*	Cocount	Arecaceae	1
2	*Emblica Officinalis*	Avala	Euphorbiaceae	1
3	*Cycas Revolute*	Cycas	Cycadacea	2
4	*Jatropha Curcas*	Yearand	Euphorbiaceae	4
5	*Murrya Koenigii*	Kadipatta	Rutaceae	2
6	*Bougainvillea Glabra*	Bougainvel	Nyctginaceae	11
7	*Polyalthia Longifolia*	Ashok	Ceasalpinaceae	17
8	*Hyophorbegeni Caulis*	Bottle palm	Aracaceae	9
9	*Azadirachta Indica*	Neem	Meliaceae	24
10	*Sennasulfurea*	Mothatarwad	Ceasalpinaceae	2
11	*Grevillea Robusta*	Silver oak	Protaceae	3
12	*Hibiscus Trionum*	Trionum	Malvaceae	3
13	*Bauhinia Variegate*	Kanchan	Fabacaeae	3
14	*Sesbania Grandiflora*	Shevari	Fabacaeae	1
15	*Platycladus Orientalis*	More pankhi	Cupressaceae	3
16	*Catharanthus Roseus*	Sadafuli	Apocynaceae	2
17	*Ficus Racemosa*	Umber	Moraceae	11
18	*Tecoma Rosea*	Ghantiful	Bignoniaceae	15
19	*Tecoma Campensis*	Ghantiful	Bignoniaceae	15
20	*Tabernaemontana Divaricata*	Tagar(Ananta)	Apocynaceae	25
21	*Pandanus Variegated*	pandan	Pandanaceae	9

22	*Acalypha Hispida*	Kuppikhokali	Euphorbiaceae	12
23	*Acalypha Alba*	Kuppikhokali	Euphorbiaceae	15
24	*Nerium Indicum*	Kanher	Apocynaceae	18
25	*Lilium (Lily)*		Lilieae	9
26	*Codiaeum Variegatum*	Croton	Euphorbiaceae	4
27	*Tinospora Cordifolia*	Gulvel	Menispermaceae	2
28	*Jatropa Integerrima*	Peregrine	Euphorbiaceae	1
29	*Delonix Regia*	Gulmohar	Fabaceae	7
30	*Sansevieria Trifasciata*	Sanke plant	Asparagaceae	12
31	*Euphorbia Macrocarpus*	Lady's slipper	Euphorbiaceae	5
32	*Wodyetia Bifurcate*	Foxtail palm	Arecaceae	2
34	*Phoenix Dactylifera*	Palm	Arecaceae	2
35	*Hibiscus Rosa-Sinensis*	Jaswand	Malvaceae	2
36	*Jacaranda Mimosifolia*	Nilmohor	Bignoniaceae	1
37	*Samanea Saman*	Rain Tree	Fabaceae	1
38	*Tabebuia Rosea*	Pink poui	Bignoniaceae	1
39	*Ficus Benjamina*	Weeping fig	Moraceae	1
40	*Nephrolepis Exaltata*	Sword fern	Nephrolepidaceae	1
41	*Dracaena Marginata*	Dragon tree	Asparagaceae	2
42	*Withania Somnifera*	Ashwgandha	Solanaceae	2
43	*Bismarckia Noblis*	Fan Palm	Arecaceae	2
Plants found in garden and shaded net area				
44	*Durantaerecta*	Golden duranda	Verbenaceae	5
45	*Annonareticulata*	Custard Srapple	Annonaceae	2
46	*Jovibarbaheuffelii*	Cactus	Cactaceae	4
47	*Bryophyllumpinnatum*	Panfuti	Crassulanceae	5
48	*Aloe Vera*	korfad	Liliaceae	5

49	*Abeliatriflora*	Sher	Caprifoliaceae	1
50	*Abelmoschusmanihot*	Allu	Malvaceae	1
51	*Aspidiumspinulosum*	Fern	Osmundaceae	2
52	*Platycladusorientalis*	Morpankhi	Cupressacae	2
53	*Hibiscus Trionum*	Trionum	Malavaceae	4
54	*Polysciasfruticosa*	Arerlia	Araliaceae	5
55	*Thamustinctorius*	Dressigna	Asteraceae	1
56	*Chrysalidocarpuslutescens*	Areca palm	Arecaceae	6
57	*Asparagus Racemosus*	Shatavari	Asparagaceae	1
58	*Psidiumguajava*	Peru	Rubiaceae	1
59	*Sesbaniagrandiflora*	Shevari	Fabaceae	10
60	*Calotropisgigantea*	Rui	Asclepiadaceae	1
61	*Ficusracemosa*	Umber	Moraceae	2
62	*Neriumindicum*	Kanher	Apocynaceae	2
63	*Tecomarosea*	Ghantiful	Bignoniaceae	1
64	*Tecomacampensis*	Ghantiful	Bignoniaceae	1
65	*Acalyphahispida*	Kuppikhokali	Euphorbiaceae	2
66	*Acalypha Alba*	Kuppikhokali	Euphorbiaceae	1
67	*Jatropacurcus*	Mogli	Euphorbiaceae	1
68	*Hyophorbegenicaulis*	Bottle palm	Aracaceae	3
69	*Cocusnucifera*	Cocount	Arecaceae	1
70	*Rosa Centifolia*	Gulab	Rosaceae	1
71	*Rosa Indica*	Gulab	Rosaceae	2
72	*Syzygiumcumini*	Jambul	Myrtaceae	1
73	*Ocimumsantum*	Tulas	Lamiaceae	7
74	*Hibiscus Rosa-Sinensis*	Jaswand	Malvaceae	1
75	*Hamelia Patens*	Firebush	Rubiaceae	1

76	*Plumeriarubra*	Red frangipani	Apocynaceae	1
78	*Plumeria Alba*	White frangipani	Apocyanaceae	1

Table 6: List of Trees available in premises

4.1.3 Green practices

We observed the following points during the investigation:

- There is **availability of open space** in the premises.
- There are provisions for **sufficient number of plantations**.
- There are adequate Maintenance staff who manage the entire premises.

4.1.4 Eco-friendly initiatives undertaken

The Institution has undertaken the following initiatives through **excellent efforts** towards save environment measures.

- **Health camp**
- **Blood donation camp**
- **gender sensitisation**
- **Tree plantation**
- **Construction of *Vanrai Bandhra* (Check dam)**
- ***Swatch Bharat Abiyan***
- **National Technical Day celebrations**

Due to pandemic situation multiple activities could not be undertaken.

4.2 Noise Audit

4.2.1 Macro level

On a macro level there are settlements close to the site but there is there is minimum noise pollution from the surrounding areas. The approach road towards the College has balanced traffic. **Overall as per our analysis the noise level is low and less noise Pollution as College falls under silent zone as per our analysis.**

4.2.2 Micro level

The College has huge open space covered with greens which absorb the sound and help in keeping noise levels low. The students and staff do not have any disturbance in academics majorly. However there is provision for staff parking which causes very less noise. There are no particular equipments which cause any effect with respect to noise. **Overall the noise levels inside the premises are low which is a good practice.**

4.3 Carbon Footprint Audit

4.3.1 Eco-friendly Commuting Practices

Based on data collection and discussion with staff the following points were noted:

- **Ease of commuting –** Owing to close proximity to public transport the access is very feasible and walk able.
- **Parent's commute -** There are 2 Parent-teacher meetings held in a year and the turn-out is around 65%
- **Student vehicles** – The provision provided by College includes 100 cycles, 50 bikes, 8-10 four-wheeler. Most of the students come to College by bicycles.
- **Visitors vehicles –** Approximately 25-30 visitors with vehicles visit the premises daily, but visitors vehicles are not parked in the premises.

4.3.2 Heat Island Reduction

The Institution has **adopted the following practices which are yielding positive results** in terms of Urban Heat Island Effect which refers to increase in temperature of the surrounding because of ineffective strategies.

- **Exposed roof areas –** The terrace is a flat roof which is absolutely clean and well maintained. The Buildings are covered with white paint and Solar Panels. The Maintenance staff along with the Management have taken ample measures to maintain the same in proper condition. **There was no weathering of roof observed.** The current practices are well maintained.
- **Exposed non-roof hardscape areas -** There are pathways on all sides of the premises. These include some natural and potted plantations along the pathways.

However, the trees are huge and the canopy is wide spread thus providing ample shade to the outdoor areas of the premise. Hence, there is no direct sunrays or similar effect affecting the students and staff. The college has an open space in the form of lush green carpet which acts as a solution for the urban heat island effect. This huge green space is a very good solution for reducing any harmful health consequences which may arise due to harsh sunlight.

There are adequate measures adopted in the premises to reduce heat island effect of Building roofs and in site.

4.3.3 No Outdoor Light Pollution

The College compound lights are not upward looking there not causing light pollution.

4.4 Health & Hygiene Audit

4.4.1 Smoke Exposure

As per the Site visit the following analysis has a positive impact on premises.

- The College has No Smoking awareness posters as part of the awareness.
- The Canteen uses Gas cylinders for cooking, there is no utilisation of fire wood. Thus there is no smoke from burning of fire wood and any health issues related to the same.
- The garbage in premises is not burnt and there is not air pollution because of it. The Institution is a tobacco and smoke free premises which helps in adapting to a Healthy Institution
- There is a huge open space in premises which is allowed for social gathering among students. It is also used for sports, outdoor games, annual days, cultural functions and also used for physical activities by the students.
- There is parking provision inside the premises there is slight issue of dust owing to the same but it is balanced with the thick vegetation in the premises.

4.4.2 Hygiene

- For overall hygiene of the students and staff there are facilities such as Washroom facility on ground floor, napkin disposal, hand wash, Sanitary vending machines, drinking water facility as Aquaguard.
- The hygiene of toilet areas is well maintained.
- **The entire premises is cleaned on daily basis, it is very appreciating that there are only few Maintenance staff who strive their best to take care of the entire premises in the most excellent way possible.**
- There are designated Hygiene specialist and Maintenance staff who keep a regular check about the operation and maintenance of the toilet areas and the equipments, lights and all facilities on each floor.
- Water management initiative with appropriate hygiene is undertaken. The areas of water tanks in site on ground floor are clean and no mosquito breeding spots are there.
- The food premises and equipments are cleaned as per schedule with special care taken to avoid any water stagnation.
- The food waste and other refuse is removed periodically from food handling areas to avoid accumulation.
- As part of Tree Plantation programme the initiative of **Swachh Bharat Abhiyan of Govt. of India** is undertaken during Environment Day Celebrations.

4.5 Universally Accessible Premises

As per World Report on Disability, 2011 *there are 180 million approx. Persons with Disabilities that makes it 15% of total population of India.* The College has the following facilities for user benefit.

- The College has **provisions of ramps for main access** to the Buildings from.
- There are **Handrails along corridors or near staircase** in the Buildings
- There are **provisions for wheelchair** as part of Universally accessible premises initiatives.

- The College has **resting places (seating areas)** in the premises outdoors, thereby making it user friendly for the specially abled students.
- The design of the premises is **appropriate for access with passages and corridors being wide enough for two way circulation.**
- The single loaded corridors are safe from fire safety as there are staircases and fire extinguishers provided. There is a provision of ramp in premises.

Our analysis states **the current practices are well maintained** and whenever the College undergoes renovation in future there can be an additional amenity in the form of Lifts, thus making it a 100% accessible premise.

4.6 Survey Results

An online survey was conducted to analyse the student and staff views about the premises, following are some of the reviews.

4.6.1 Participation

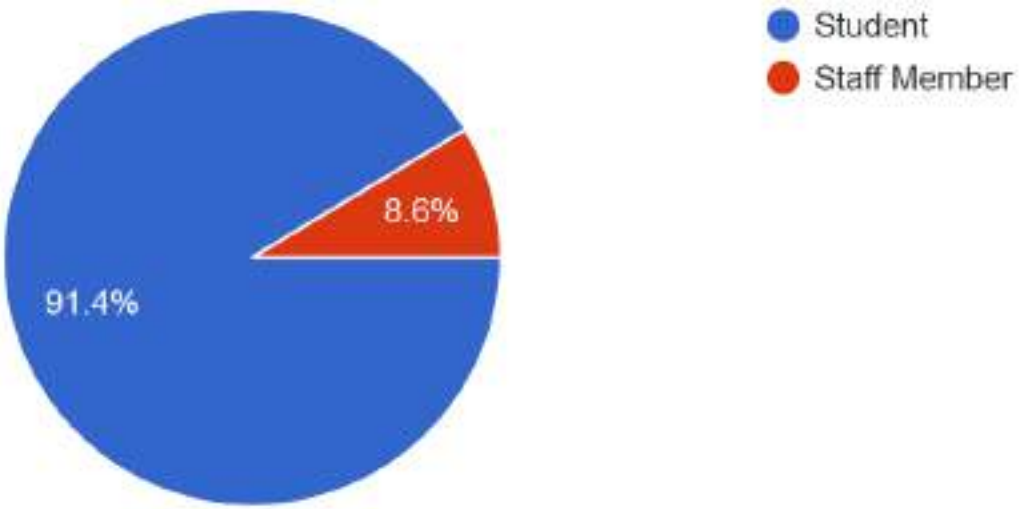


Figure 1: Participation analysis in the survey

A total of **116 responses** were received out of which 91% were students.

Note about the review-rating survey

The Participants were asked to review (Though an online mode) the practice on a scale of 1-5 with scale components as follows:

- Scale 1 – Poor

- Scale 2 – Satisfactory
- Scale 3 – Good
- Scale 4 – Very good
- Scale 5 – Excellent

The figures in each of the columns of graph depict the Number of participants responses in numerical (Percentage of the participant response) – For example 101 responses (44.5%)

4.6.2 Rate the Green awareness practices in College

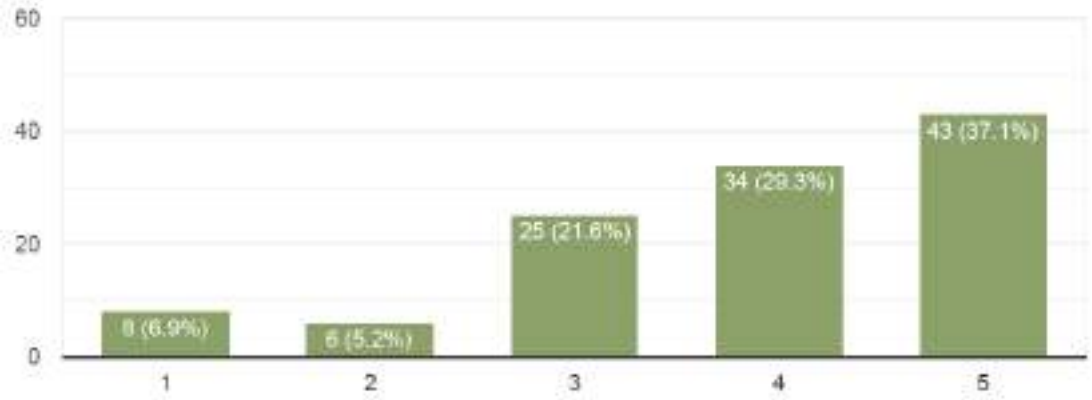


Figure 2: Green awareness practices in College

The Students, Staff **(almost 37%)** of responses found the practices to be excellent.

4.6.3 Does your College conduct environment awareness programs/ webinars/ plantations/ cleanliness or similar programs?

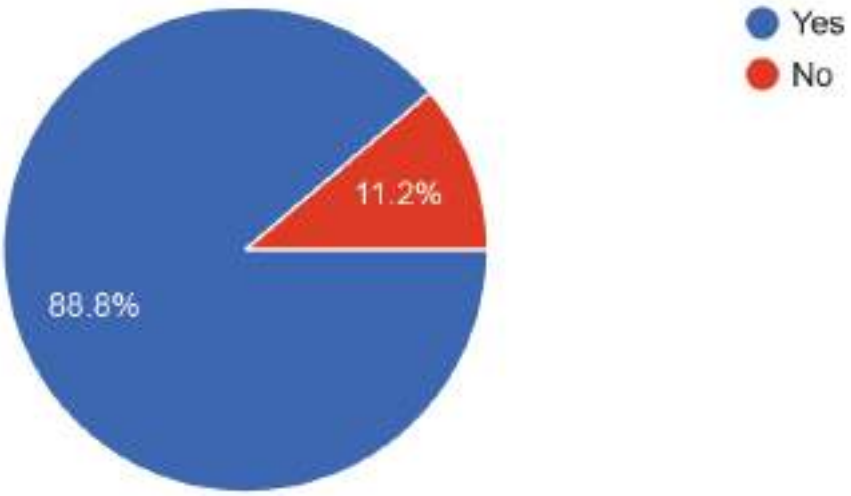


Figure 3: Survey about the College conducting environment awareness programs/ webinars/ plantations/ cleanliness or similar programs

The students, staff **(almost 89%)** of responses confirmed activities are conducted.

4.6.4 Do you participate is such events?

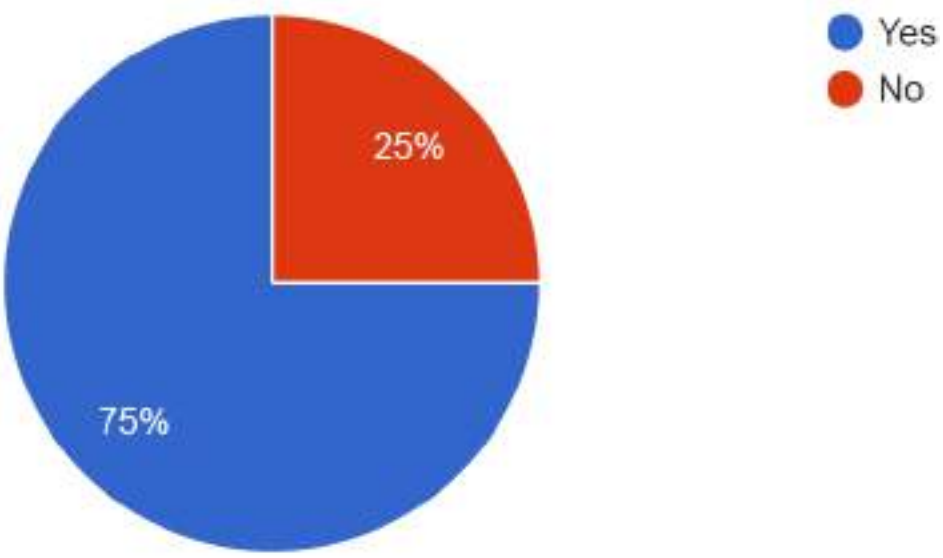


Figure 4: Participation of Students and Staff in the Environment related programs conducted by the College

The students, staff **(almost 75%)** of the responses confirmed their participation.

4.6.5 If yes, what has been your experience about the program?

We have listed some of the key responses below.

- **Very good**
- They had kept the **Environment Clean Awareness Program which was really good.**
- Nice program
- **Brilliant**
- **It was a good experience for me. This program such a knowledgeable.**
- Great
- **Nicely organized and knowledgeable.**
- **My experience is very good about program because in such programs we plant more trees in College & take care of them.**
- My experience is very nice and I feel very happy to do this work.
- Increased knowledge about environment and green building.

4.6.6 What according to you are the positive steps taken by the Institute towards Green Building/ Good maintenance?

We have listed some of the key responses below.

- **They arrange webinars and give information about green building.**
- Awareness Programme
- Pollution and waste reduction measures and the enabling of re-use and recycling.
- **Tree plantation Programmes.**

4.7 Recommendations for a Sustainable Habitat

a) Promote the use of Eco-friendly vehicles

There can be provision for cycle and battery operated vehicles/ low emission vehicles such as electrically driven vehicles parking in open space along with battery charge points, this would inspire students to change mode of transportation and adopt sustainable practices.

b) Low VOC Paints and Adhesives

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

c) Environmental awareness

There can be various artworks on compound wall giving message of saving environment through the joint efforts of the students and staff thereby making the student socially and environmentally responsible citizen.

d) Water and food facility for birds

As there are large numbers of fauna present in the premises, small bird houses designed with organic materials can be implemented.

e) Environmental Hygiene clubs

There can be provision of environmental hygiene clubs formed jointly with students and staff to ensure additional hygiene of premises and promote student participation.

विज्ञान महाविद्यालय, सांगोला येथे दिव्यांग दिन साजरा

सांगोला(प्रतिनिधी):- समाजाच्या मुळ प्रवाहापासून व विकासापासून जो दूर राहिलेला व्यक्तीसमुह आहे. परकेपणा व न्यूनगंड यामुळे ज्या व्यक्तीसमुहाला समाजामध्ये मिसळावे, आपल्या वेदना व्यक्त कराव्यात, असे वाटत नाही, त्याचेच नाव दिव्यांग आहे. दिव्यांग असणाऱ्या व्यक्तीकडे केवळ दयाबुद्दीने न पाहता तो व्यक्ती आपलाच आहे, असे समजले पाहिजेत. वादृष्टीने सर्वांनी प्रयत्न करावेत, असे विचार प्रा.कॅप्टन संतोष कांबळे यांनी व्यक्त केले.

विज्ञान महाविद्यालय, सांगोला येथे दिव्यांग दिन साजरा करण्यात आला. यावेळी प्रमुख पाहुणे म्हणुन प्रा.कॅप्टन कांबळे बोलत होते. कार्यक्रमाचे अध्यक्षस्थान प्रा.डॉ.तानाजीराव फुलारी यांनी भूषविले.

३ डिसेंबर १९९२ पासून दिव्यांग दिन साजरा केला जातो, असे सांगून प्रा.कॅप्टन साळुंखे पुढे म्हणाले, आपल्या सभोवतालच्या परिसरातील दिव्यांग लोकांच्या भावना, वेदना समजून घेतल्या पाहिजेत. या लोकांना पैशापेक्षा मदतीची व आधाराची आवश्यकता आहे. अनेक क्षेत्रामध्ये दिव्यांग बांधवांनी आपल्या कर्तृत्वाचा ठसा उमठाविला आहे. अशा व्यक्तींना आपण सर्वांनी मिळून मदतीचा हात पुढे केला पाहिजे व त्यांच्या ज्ञानाचा उपयोग राष्ट्र उभारणीसाठी केला पाहिजे, असेही त्यांनी सांगितले.

कार्यक्रमाचे अध्यक्ष प्रा.डॉ. तानाजी फुलारी मार्गदर्शन करताना म्हणाले, शारीरिक व मानसिक दृष्ट्या अपंग असणाऱ्या व्यक्तींना प्रोत्साहन दिले पाहिजे. त्यांचे दु:ख, समस्या यावर उपाययोजना केल्या पाहिजेत तरच त्यांच्या मनामध्ये असणारी भिती कमी होणार आहे. त्यांच्याकडे असणाऱ्या ज्ञानाचा समाजाने उपयोग करुन घेतला पाहिजे. त्यांना सामाजिक, राजकीय, आर्थिक, शैक्षणिक क्षेत्रामध्ये संधी उपलब्ध करुन दिली पाहिजे. तेव्हा दिव्यांग व्यक्तीचा सन्मान करायला शिकले पाहिजे, असेही शेवटी ते म्हणाले.

कु.स्वाती खांडेकर, प्रा.बाळकृष्ण कोकरे यांनी आपल्या मनोगतामध्ये दिव्यांग व्यक्तींची समाजामध्ये होणारी अवहेलना स्पष्ट केली. कार्यक्रमाच्या सुरुवातीला दिव्यांग व्यक्तींचा प्रमुख पाहुण्यांच्या हस्ते गुलाबपुष्प देऊन सत्कार करण्यात आला.

कार्यक्रमाचे सुत्रसंचालन प्रा.दिपक रिटे यांनी केले. यावेळी प्रा.डॉ.काकासाहेब घाडगे, उपप्राचार्य संभाजीराव शिंदे, प्रा.किसन पवार यांच्यासह विद्यार्थी, विद्यार्थीनी व दिव्यांग बांधव मोठ्या संख्येनी उपस्थित होते. आभार प्रा.किसन पवार यांनी मानले.

कार्यक्रम यशस्वीरित्या पार पाडण्यासाठी शिक्षक, शिक्षकेतर कर्मचारी यांनी विशेष परिश्रम घेतले.

Waste Audit

Background reference image Polina Tankilevitch on pexels

Greenvio Solutions

5. Waste Audit

Waste is an inevitable part of our lives. Over the years as the awareness about waste management techniques has given a rise to rethink how the waste can be avoided form being sent to the landfills. The audit provides an approximation of the types of waste generated, location of waste collections, disposal techniques used, waste segregation methodologies adopted, waste management strategies that are and implemented in addition to the newer ways the can be adopted aiming to make the premises clean and sustainable. Here sustainable refers to a broader aspect to analyse whether the current techniques are having positive or negative effect on the stakeholders of the premises.

5.1 Waste produced

5.1.1 Types and disposal of waste in Premises

The types of waste collected in the premises are as follows, these are separated before processing.

S. No.	Type of waste	Source and quantity	Current Disposal method	Can be treated/ recycled?	Methodology
1	Solid waste	Toilets–Biodegradable waste of 15-20 kg per week	Led in the storm water drains	Yes	TREATED - Small biogas plant can be proposed in open space
2	Paper waste	Newspaper and other paper	Sold to vendor	Yes	CONTINUE - with the current practice
3	E-waste	Computers - Non-biodegradable waste as per the annual year usage	Given to vendor	Yes	CONTINUE - with the current practice
4	Dry waste in form of leaves	Open space & plantations, papers - Non biodegradable waste of 8-10 kg per week	Handed over to Municipality	Yes	TREATED - Bio-Composting in a 10 x 8 x 5 feet
5	Liquid waste	Toilets, washbasins – Around 100 – 120 litres per week during general times and 50 litres at present	Led to the storm water drain and garden	Yes	TREATED - Waste water treatment plant a well as continue with current practice of reuse in garden
6	Organic regular waste	Dust, dirt usually dry waste from Canteen and all sources – approx. 3 to 5 kg	Handed over to Municipality	Yes	Bio-Compost to a certain extent

Table 7: Summary of the types of waste produced in the premises

5.1.2 Bins summary

There are 7 Dustbins in the premises with volume of 7 litres (small) and 60 litres (Big) each. The analysis of dustbins is presented below.

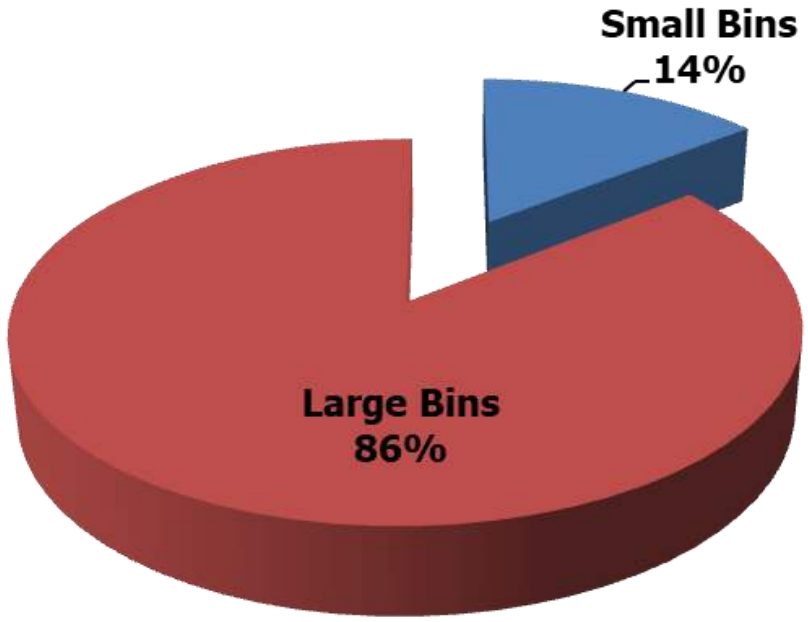


Figure 5: Analysis of dustbins size wise in the premises

The above analysis shows **86% are Large dustbins** & **14% are Small dustbins.**

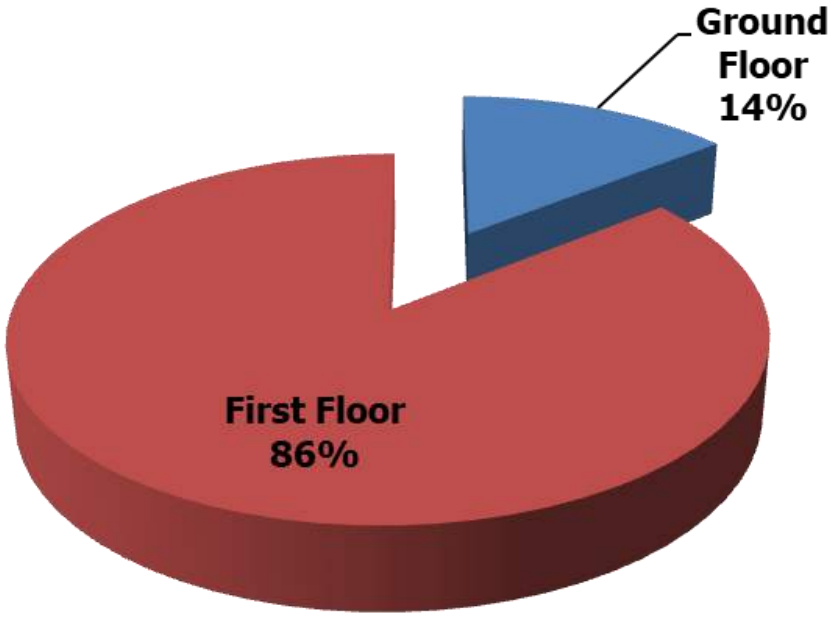


Figure 6: Analysis of dustbins floor wise in the premises

The above analysis shows **86% dustbins are present on First floor and 14% on Ground floor.**

5.2 Waste handling

Quantification wise as per Interview and survey it was found the following type of waste is Solid, Liquid, Hazardous Waste, Dry leaves, E-Waste, Canteen waste, Unused Equipment and Others (Sanitary Napkins) waste is collected. The waste produced on premises is segregated. It is collected on a weekly basis. The waste is not handed over to the local municipality van. There is a dumping pit in the garden which should not be there.

5.3 Waste management

The College reuses the papers. Ample measures are taken to maintain hygiene. No smell problem or health related issues due to the waste are there. There are adequate numbers of bins present in all parts of building. The waste does not pollute the ground or surface water. There is no problem of air pollution from waste as informed.

The wastes from toilets are discharged to main drains through underground covered channels (Safety Tanks) thus avoiding any incident. There is provision for Sanitary Napkin Disposal Machine in the premises for proper & hygienic disposal of sanitary napkins.

5.4 Survey Results

Note about the review-rating survey

The Participants were asked to review (Though an online mode) the practice on a scale of 1-5 with scale components as follows:

- Scale 1 – Poor
- Scale 2 – Satisfactory
- Scale 3 – Good
- Scale 4 – Very good
- Scale 5 – Excellent

The figures in each of the columns of graph depict the Number of participants responses in numerical (Percentage of the participant response) – For example 101 responses (44.5%)

An online survey was conducted to analyse the student and staff views about the Waste management practices adopted in College, following is the result received.

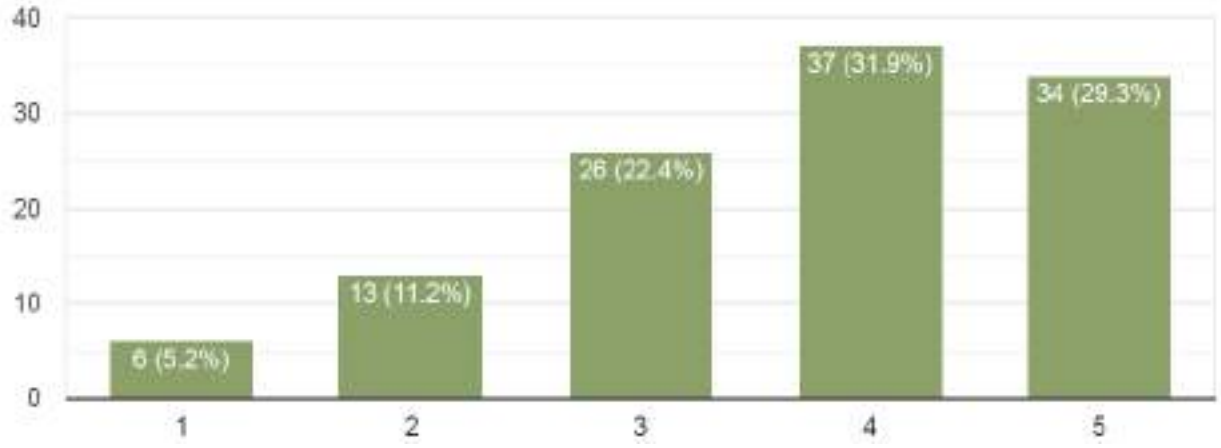


Figure 7: Waste management practices in College

The Students, Staff **(almost 32%)** of responses found the practices to be Very Good.

5.5 Recommendations for a Sustainable Habitat

a) Zero Waste practice adoption

The college can undertake a zero organic waste protocol. The following practices can be adopted as part of the same.

- The food waste generated by the students and staffs are taken by them to their own home, so that, minimum waste is generated inside the premises.
- The organic waste generated in the canteen is used as feed for a biogas plant and the biogas is used as fuel in college canteen.
- Vegetable waste and other leaf litters can be used to fed in the vermi-compost pit and the resulting vermin-cast is used as manure in the garden.
- The chemicals from the laboratories be disposed in a sealed tank along with water, so that the chemicals undergo neutralization with the water.

As part of the above there will be a requirement for a Biogas plant, vermin-compost pit, awareness signages, sealed tank for waste water from chemical laboratory.

b) Incinerators

The Incinerators should be installed in Girls toilets for disposal of sanitary napkins

c) Twin Dual Litter Dustbin Bins

There should be more number of dual litter dustbins at various locations in areas such as Canteen, open spaces. This would inculcate the awareness of waste segregation among students.

d) Signages

Message about avoiding wastage should be placed at appropriate locations.

e) Compost pit

There can be provision for a compost pit.

f) Dustbins at every 100m

There should be dustbin at every 50-100 in the open spaces.

Water Audit

Background reference image Vlad Chetan on pexels

Greenvio Solutions

6. Water Audit

Water is one of the basic needs. Pure drinking water is a resource which needs to be preserved efficiently. Water audit helps to identify the sources of water consumption, the water requirement by the premises met by these sources. The points and effective usage of without any wastage. Understanding the techniques which are best suited to the site to increase water conservation in terms of awareness and practice.

6.1 Water availability and consumption

The main source of water is through well and Rain water harvesting. The College requires water from the Local Municipality. The total water consumption is through the water tanks (Capacity 25,500 litres) on site.

6.2 Water requirement

The main areas of water requirement and type of usage is as follows

- **Drinking water –** General water required for drinking purpose using around 245-260 litres of water through the RO and Aquaguard available in the premises.
- **Toilet blocks and practical laboratories** – General usage by occupants in toilets, urinals, bathrooms, wash basins using approx. 300 litres of water daily and
- **Cleaning of the premises –** The entire Institution is very well maintained with respect to hygiene and cleaning is one of the major uses of water requirement.
- **Garden and surrounding open space** – Cleaning, watering the plants requires approximately more than 500 litres of water on alternate days in winter season and about 2-3 times a day in summer season on a regular climate day it is watered 3 days a week and in rainy season it is dependent on the monsoon showers.
- **Preparation of solutions in labs –** For experiment purpose in the Practical Laboratories water is utilised, however there is water wastage of about to a certain extent and currently this water is not treated and care is taken that it does not get mixed with the drain.

6.3 Areas of water usage

The following is a summary of the general water usage spaces - toilets, urinals, shower, flush tanks and wash basins/ taps in the premises all of these are available on ground floor. Based on the inventory done and data shared by the staff it was found that the premises have a total of 66 lavatories (including urinals), 137 taps. As per the data shared by the College, it was noted that there is wastage of water to a certain extent in the form of Toilet and Laboratory and the common reason is cleanliness.

6.4 Site investigation about water management.

- There was no water leakage in the entire premises, the pipes well maintained with adequate hygiene.
- The premises have an efficient water management in terms of operations and maintenance. The toilets were kept very tidy and are cleaned on alternate days.
- There is sufficient number of taps in the premises.
- Drip irrigation system is used for watering the Garden which is 3 days a week.

6.5 Survey Results

Note about the review-rating survey

The Participants were asked to review (Though an online mode) the practice on a scale of 1-5 with scale components as follows:

- Scale 1 – Poor
- Scale 2 – Satisfactory
- Scale 3 – Good
- Scale 4 – Very good
- Scale 5 – Excellent

The figures in each of the columns of graph depict the Number of participants responses in numerical (Percentage of the participant response) – For example 101 responses (44.5%)

An online survey was conducted to analyse the student and staff views about the Water management practices adopted in College, following is the result received.

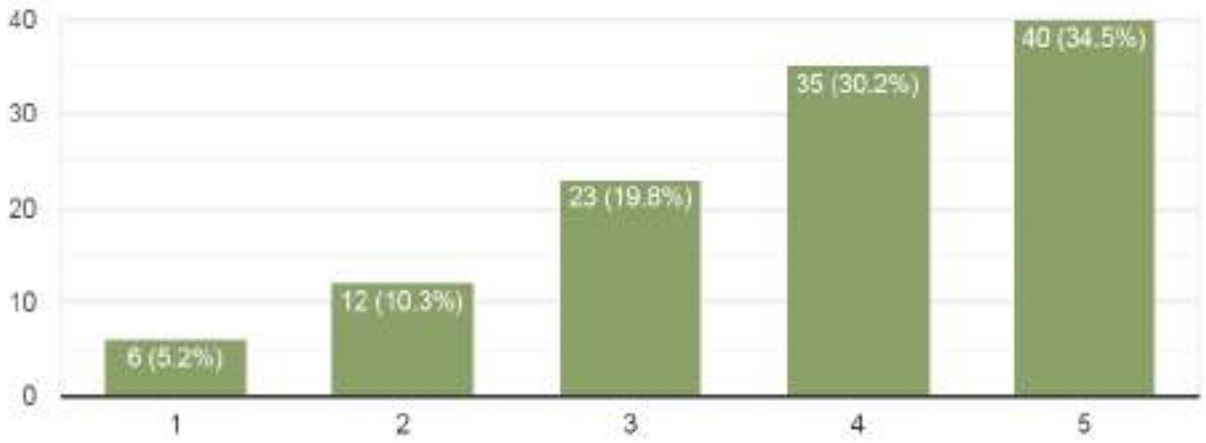


Figure 8: Water management practices in College

The Students, Staff **(almost 35%)** of the responses found the practices to be excellent.

6.6 Recommendations for a Sustainable Habitat

Below mentioned are few suggestions for better water management practices in the premises.

a) **Universal Toilet -** At least 1 toilet should be made for specially abled as per universal design norms.

b) **Waste water from toilets -** This should be collected and a waste water treatment plant can be installed in the open space wherein this water can be treated and reused for gardening and toilet flushing.

c) **Signages -** Message about avoiding water wastage should be placed at appropriate locations.

d) **Waterless urinals -** There can be provision of waterless urinals as a Green Building initiative in the premise, either the existing ones can be replace with such a facility of new toilets can be constructed in this manner.

e) **Water flow stopper -** The water flow stopper should be installed to avoid overflow and smart use of system. Install water-saving shower heads or flow restrictors. No leakage anywhere in premises. Water lawn only when it needs it.

Energy Audit

Background reference image Janko Ferlic on pexels

Greenvio Solutions

7. Energy Audit

7.1 Sources of Energy consumption

The premises uses following sources of energy consumption.

7.1.1 Primary sources

1. **Electrical (Metered) –** Light, Fans, Equipments, Pumps consume approximately 0 units per month for Rs. 362/- per month (average).
2. **Electricity (Solar - Photovoltaic cells are used for solar energy) –** There are Solar Panels in premises, they generate up to 15 kWp of energy per month. It is a Solar Rooftop Power Plant with HP Make Electronic Single Phase Net-metering for PPA with MSEDCL. It consists of 3 kW Grid Tied Inverter (PCU) and 48 Modules, fixtures and minor wiring included. **It was installed at a cost of Rs. 9,13,500/- with 5 years warranty.**

7.1.2 Secondary sources

1. **Inverter –** There is 6 Inverters in the premises and around Rs. 90,000/- was spent towards the same.
2. **Battery –** There are 13 Batteries in the premises and around Rs. 78,000/- was spent towards the same.
3. **UPS –** There are 2 UPS in the premises and around Rs. 20,000/- was spent towards the same.
4. **Gas cylinders –** There are 6 gas cylinders in the premises amounting to Rs. 12,000/- was spent towards the same.

7.2 Site investigation analysis

The Site investigation observations and interviews with the Maintenance staff, Electrical department in charge are summarised below:

- The **switch-off drills are practised at present,** the maintenance staff and Lab Attendants put off switches of all equipments regularly.
- All the **computers are shut-off after use** and also put on power saving mode.

- There are **display boards encouraging staff and students to save energy are put up in the classrooms and laboratories**.
- There are **no Ultra-violet lights and any other harmful lights used** in the premises.

7.3 Actual Electrical Consumption as per Bills

The admin department had shared the bills for Meter which is connected to all Buildings and is main source of energy supply. The supplier is Maharashtra State Electricity Distribution Limited. The type of supply is **LT – Low Tension.** The analysis of actual electrical energy consumption is summarised below. The solar panels were installed in recently post which the cost of electricity has been reduced. The details of unit consumption meter wise is as follows.

S. No.	Month	A.Y. 2019-20		A.Y. 2020-21	
		Units	Amount	Units	Amount
1	January	0	362	0	362
2	February	0	362	0	362
3	March	0	362	0	362
4	April	0	362	0	362
5	May	0	362	0	362
6	June	0	362	0	362
7	July	0	362	0	362
8	August	0	362	0	362
9	September	0	362	0	362
10	October	0	362	0	362
11	November	0	362	0	362
12	December	0	362	0	362
Total		0	**4,344**	**0**	**4,344**

Table 8: Study of the electricity consumption of the meters in premises

The summary of the above study shows the average consumption varies for each of the meters.

7.4 Survey Results

Note about the review-rating survey

The Participants were asked to review (Though an online mode) the practice on a scale of 1-5 with scale components as follows:

- Scale 1 – Poor
- Scale 2 – Satisfactory
- Scale 3 – Good
- Scale 4 – Very good
- Scale 5 – Excellent

The figures in each of the columns of graph depict the Number of participants responses in numerical (Percentage of the participant response) – For example 101 responses (44.5%)

An online survey was conducted to analyse the student and staff views about the Energy management practices adopted in College, following is the result received.

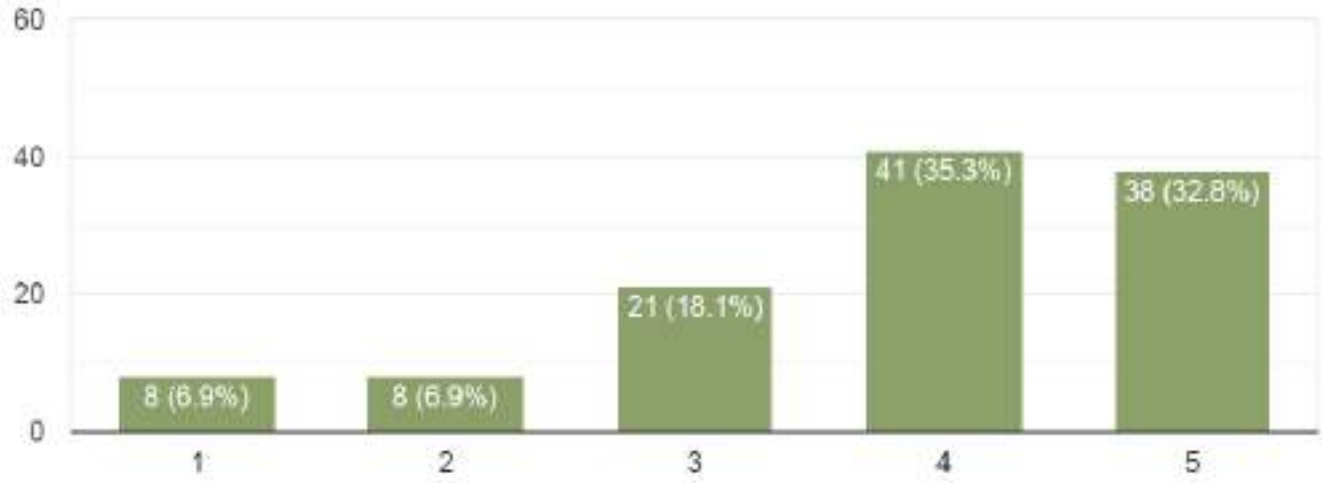


Figure 9: Energy Management practices in College

The Students, Staff **(almost 33%)** of the responses found the practices to be excellent.

7.5 Calculated Electrical Consumption as per inventory

The electricity bills provide actual consumption data. The following is the calculated consumption. It is done to understand the percentage of energy usage in the premises by various applications. It is based on the inventory collected and interviews with the staff. The additional data such as wattage is taken from market research. In terms of electrical consumption, the main sources are lights, fans, ac, equipment. The inventory and data collection for sources of energy consumed in the premises in summarised in the following sections.

Note: The following analysis is combined for entire premises taking into considerations the duration before pandemic to understand the consumption pattern as post pandemic the premises is used only for a few hours.

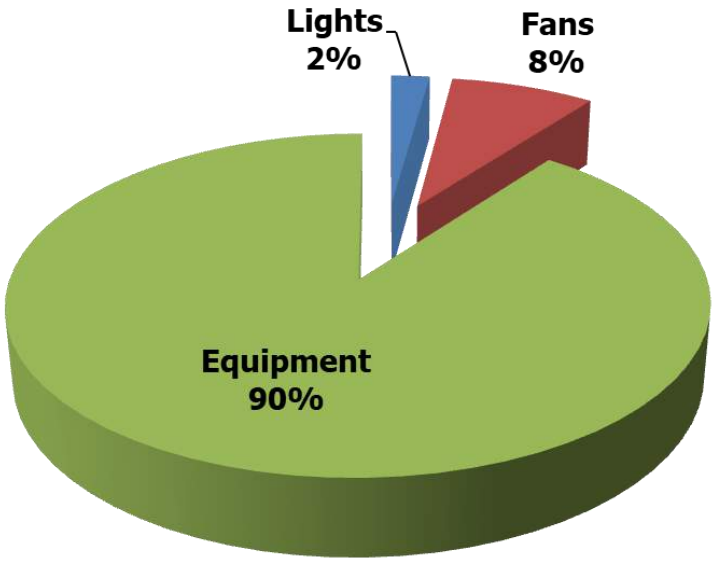


Figure 10: Summary of the Calculated Electrical Consumption as per inventory

The above graph shows that Equipment consumes 90% followed by Fans at 8% and Lights at 2% of the total calculated electrical energy.

7.6 Lights

7.6.1 Types of lights

There are a total of **132 Lights in the premises and all of these are LED Lights.**

7.6.2 Floor-wise consumption analysis

The energy consumption of Lights is **2,333 kWh** of energy; the following graph shows the floor wise consumption. This section analysis constitutes all buildings as a single entity.

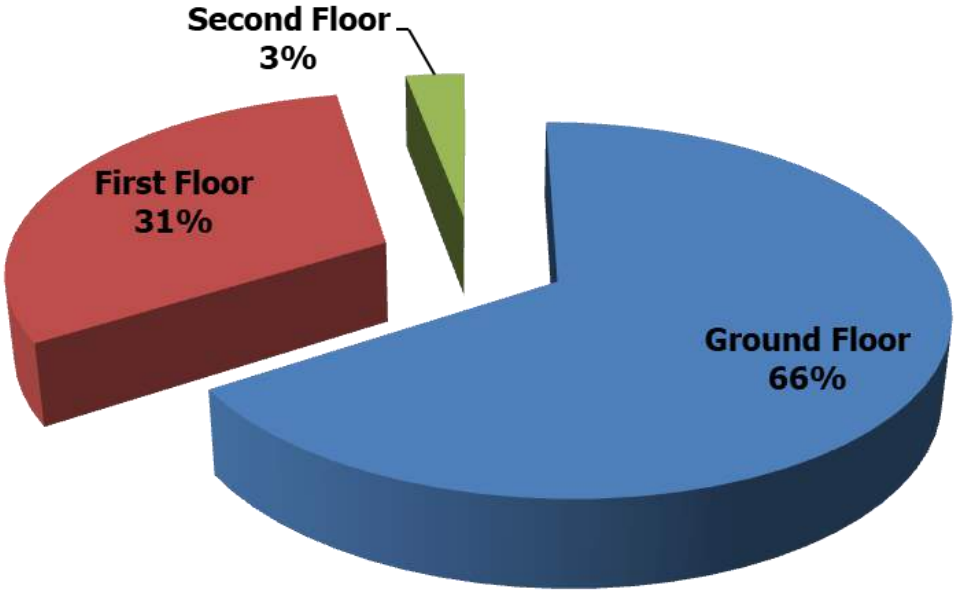


Figure 11: Energy consumed by Lights floor wise

The above analysis shows the Lights in the **Ground floor consumes the highest amount of energy of 1,538 kWh at 66%** while the **First floor consumes 725 kWh at 31%** and the **Second floor consumes 69 kWh at 3%**

7.6.3 Requirement of NAAC

7.6.3.1 Alternative Energy Initiative

Percentage of power requirement met by renewable energy sources

There are Solar Panels in premises, they generate up to 15 kWp of energy per month. It is a Solar Rooftop Power Plant with HP Make Electronic Single Phase Net-metering for PPA with MSEDCL. It consists of 3 kW Grid Tied Inverter (PCU) and 48 Modules, fixtures and minor wiring included. It was installed at a cost of Rs. 9,13,500/- with 5 years warranty. **100% of the energy produced is given back to the grid.**

7.6.3.2 Percentage of lighting power requirement met through LED bulbs

The premises has LED Lights contributing to 100%in terms of number and **100% of the power requirement** is met through the same.

7.6.4 Site investigation observations

Some of the points noticed are as follows:

1. All lights are in working conditions
2. Daily monitoring and check is done by the maintenance staff.
3. There was no fuse defect observed.

7.7 Fans

7.7.1 Types of fans

There are a total of **130 fans** in the premises. The following table shows the various types of fans in the premises.

S. No.	Type	Nos.
1	Ceiling fans	124
2	Exhaust fans	6
Total		**130**

Table 9: Summary of the types of fans in premises

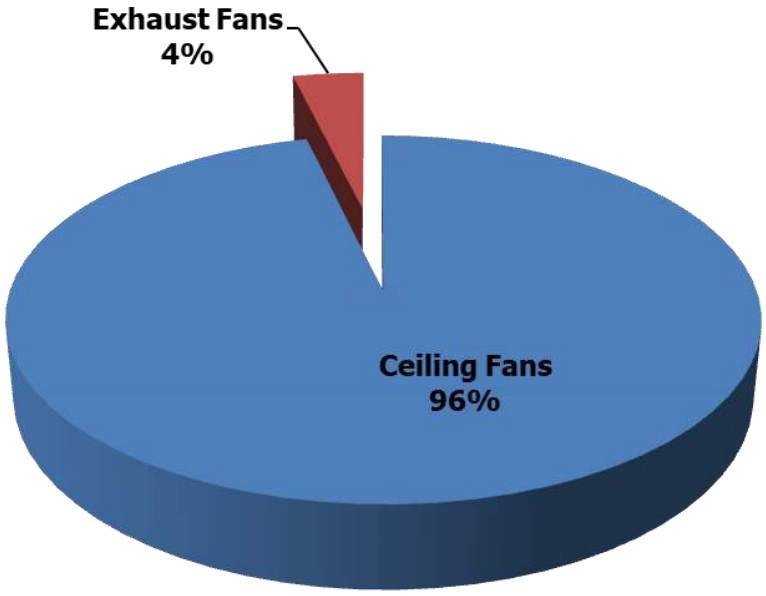


Figure 12: Energy consumed by Types of Fans in the premises based on the usage study

The analysis of the types of fans in premises shows **Ceiling fans consume 8,377 kWh at 96%** while the **Exhaust Fan consumes 325 kWh at 4%**

7.7.2 Floor-wise consumption analysis

The energy consumption of Fans is **8,701 kWh** of energy; the following graph shows the floor wise consumption. This section analysis constitutes all buildings as a single entity.

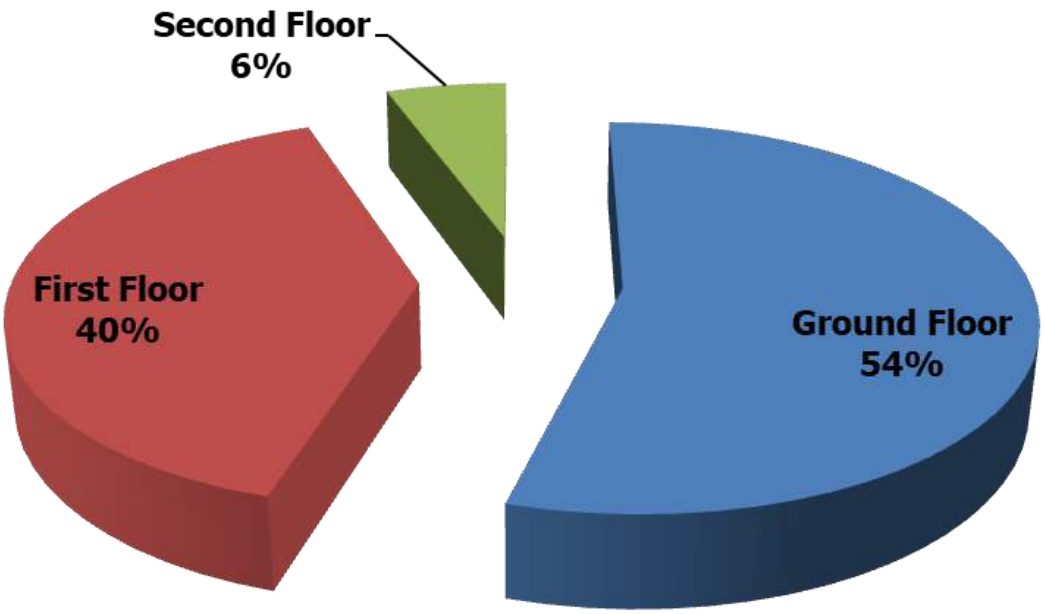


Figure 13: Energy consumed by Fans floor wise

The above analysis shows the Fans in the **Ground floor consumes the highest amount of energy of 4,745 kWh at 54%** while the **First floor consumes 3,468 kWh at 40% and the least amount of energy is consumed by Second floor which is 488 kWh at 6%**

7.7.3 Site investigation observations

Some of the points noticed are as follows:

1. All fans are in working conditions
2. Daily monitoring and check is done by the maintenance staff and admin staff in an excellent manner.

7.8 AC

There are no Air conditioners in the premises.

7.9 Equipment

7.9.1 Types of Equipment

There are a total of **16 types of equipment totalling to 227 in number** in the premises. The various types are mentioned in the table below.

S. No.	Name	Nos.
1	Amplifier	1
2	Aquaguard	2
3	Autoclave	1
4	LCD TV	1
5	Freezer	1
6	RO Machine	1
7	Sanitary Vending Machine	1
8	Water Bath machine	1
9	Xerox Machine	1
10	CCTV	38
11	Desktop Computer	145
12	LED TV	2
13	Oven	2
14	Printer	19
15	Projector	8
16	Water Motor	3
Total		**227**

Table 10: Types of equipment in the premises

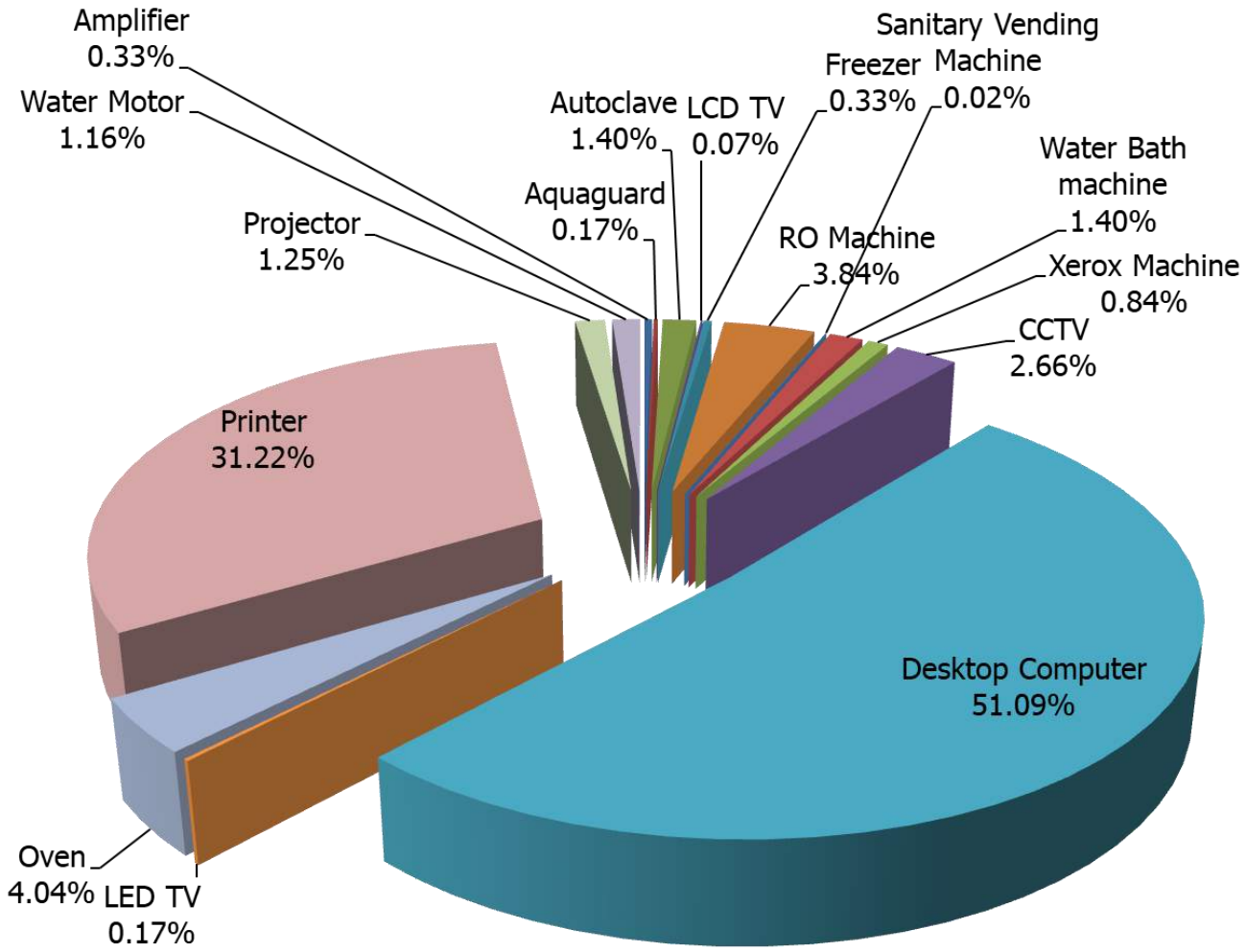


Figure 14: Summary of Energy consumed by Equipment in the premises

The above summary shows that **Desktop computer consumes more energy at 51.09%** while **Printer at 31.22%** the **Oven consumes 4.04%** and the **RO machine consumes 3.84%** these are maximum consumers as compared to other equipment. UPS and Inverter (when used for electrical consumption else it is a battery backup and does not require electricity as an equipment) are also one of the equipment but are excluded in this calculation.

7.9.2 Floor-wise consumption analysis

The energy consumption of Equipment is **96,268 kWh** of energy; the following graph shows the floor wise consumption.

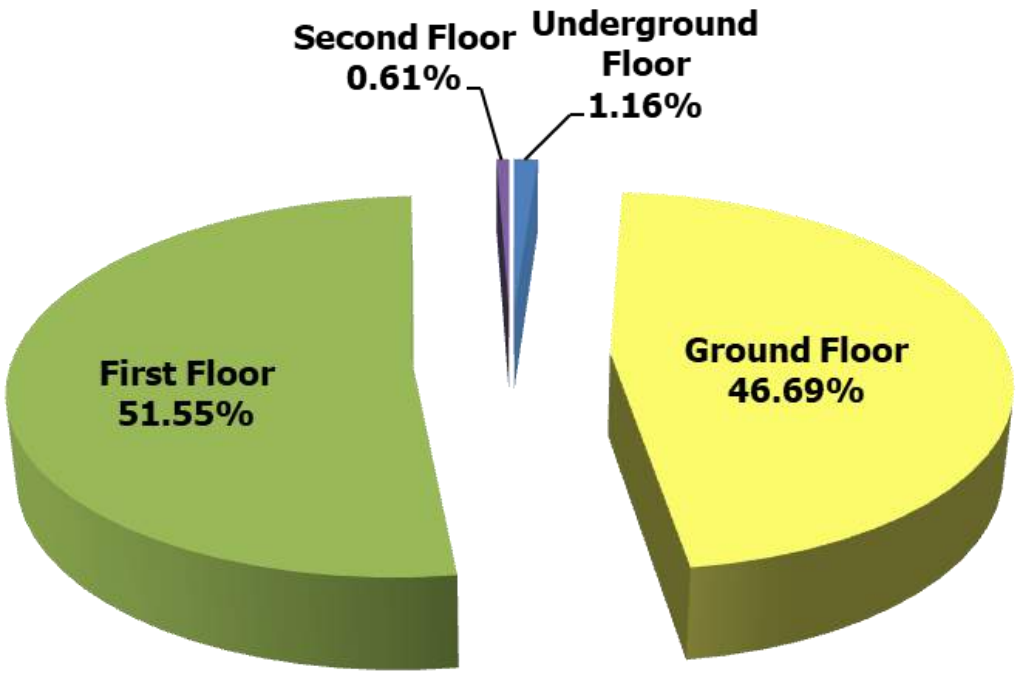


Figure 15: Energy consumed by Equipment floor wise

The above analysis shows the equipment in the **First floor consumes 49,627 kWh at 51.55%** while the **Ground floor consumes 44,943 kWh at 46.69%; the Underground floor (considering the water motor starters) consumes 1,114 kWh at 1.16%** and the **Second floor consumes 584 kWh at 0.61%**

7.9.3 Site investigation observations

Some of the points noticed are as follows:

1. All Equipments are in working conditions and Daily monitoring and check is done by the maintenance staff and admin staff in an excellent manner.
2. No defect was found in any equipment of electrical consumption.

7.10 Recommendations for a Sustainable Habitat

Over the time energy efficient appliances have been a boon not only to the energy saving parameters they adhere to but also the eco-friendly habits it helps to inculcate. The Institution such as Schools and Colleges are the best way to implement these initiatives. It creates awareness among the students at a young age. The Institutions also act as a symbol and representative of being an energy efficient premises.

Following the analysis we found are some of the suggestions which can be implemented for an energy efficient Institution. This would help in reduction of the current electrical consumption by a major percentage.

7.10.1 Fans

The current Fans are in proper working conditions and maintained well. The ceiling fans are in more quantity and consume at least 60W when in use. These should be replaced with energy efficient fans consuming 32W when in use.

The following graph shows a comparison of the current consumption and consumption of all **ceiling fans on all floors** if replaced with star rated appliance.

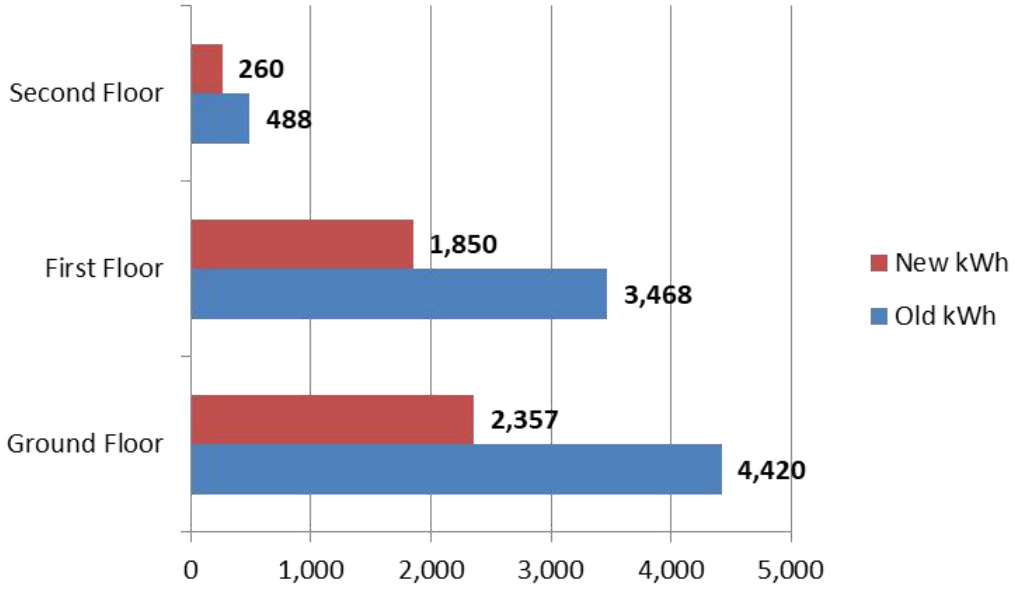


Figure 16: Analysis of current and new fans

The above analysis shows reduction of average of **47% reduction** in energy consumption if replaced with energy efficient appliance.

It will be suggested to either replace these now if College can have certain plans else the replacement can be done when fans get damaged or are not in working condition.

7.10.2 Equipment

Among all equipment it suggested to replace the desktop computers with laptops as this would be energy efficient. A normal desktop computer consumes on an average 250W and it is to be connected all time when it has to be used. On the contrary a laptop consumes 40W and has a battery backup which lasts up to 4 hours.

The following table shows a comparison of the current consumption and consumption of the **desktop computers** if replaced with laptops.

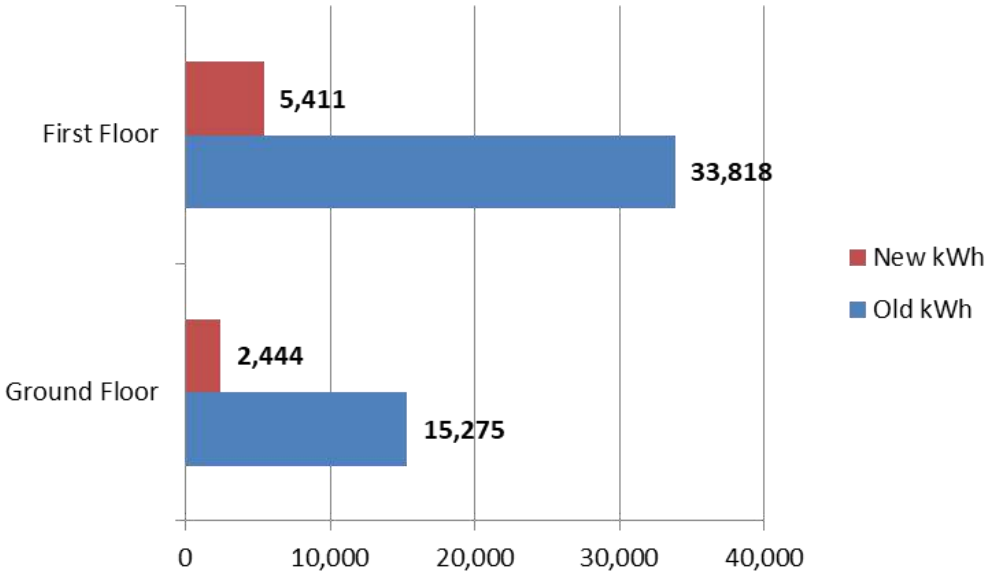


Figure 17: Analysis of current computers and new laptops

The above analysis shows reduction of average of **83% reduction** in energy consumption if replaced with energy efficient appliance.

It will be suggested to either replace these now if College can have certain plans else the replacement can be done when the devices get damaged or are not in working condition.

Tulsi Marketing

Solapur : 601, Chati Galli, Solapur - 413 002. Tel. : 0217 2324[illegible]
Sangli : 707/8, Gaopati Peth, Sangli 416416. Tel.: 0233 [illegible]
Bagalkot : 17-18, Muncipal Complex, Mahaveer Road, Bagalkot 587 101.
Mail : [illegible]

Date: 31-03-2018

To,
The Principal
Vidnyan Mahavidyalaya
SANGOLA -413307.

Respected Sir,

Sub: Completion report for installation of Rooftop GCRT Solar Power Plant– Regarding

We have successfully completed the installation of Rooftop GCRT Solar Power Plant of capacity 15 kWp.3 Phase, at your premises as per your purchase order.

All technical works related to the installation of Rooftop GCRT Solar Power Plant has been completed by us.

We take this opportunity to thank you personally, for your kind guidance during installation of Rooftop GCRT Solar Power Plant.

You are kindly requested to please release our balance payment against invoice(s) raised on you as per agreed terms of your purchase order.

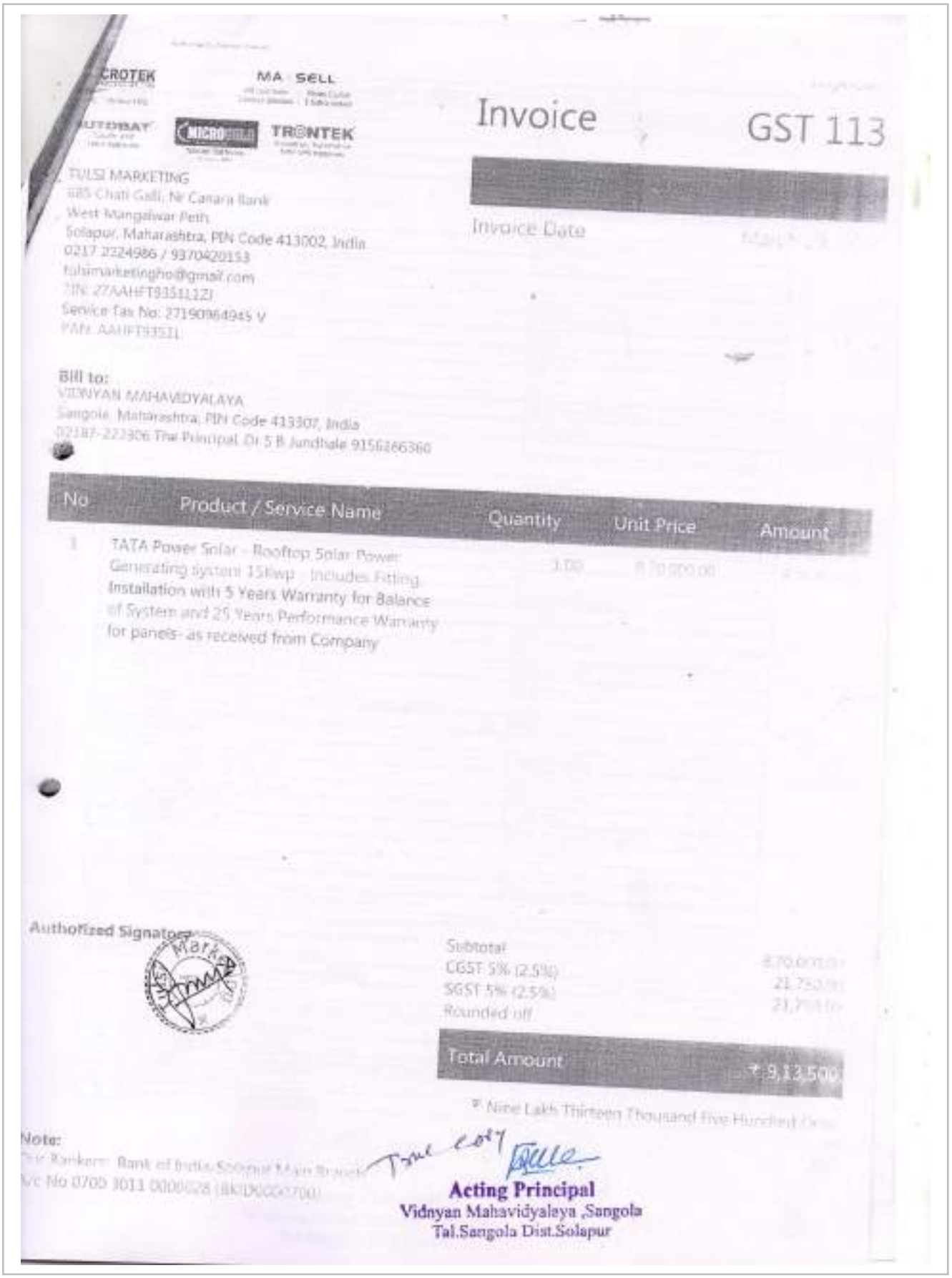
Thanking you
For **Tulsi Marketing**

Rajesh Teju – Partner
9370420153

C.C. to: The Manager,
Bank of Maharashtra
Sangola Branch, Sangola
For information please

True copy

Acting Principal
Vidnyan Mahavidyalaya ,Sangola
Tal.Sangola Dist.Solapur



CROTEK MA SELL

UTOBAT MICROTEK TRONTEK

Invoice GST 113

TULSI MARKETING
685 Chati Galli, Nr Canara Bank
West Mangalwar Peth
Solapur, Maharashtra, PIN Code 413002, India
0217 2324986 / 9370420153
tulsimarketingho@gmail.com
TIN: 27AAHFT9351J1ZJ
Service Tax No: 27190964945 V
PAN: AAHFT9351J

Invoice Date

Bill to:
VIDNYAN MAHAVIDYALAYA
Sangole, Maharashtra, PIN Code 413307, India
02187-222306 The Principal, Dr S B Jundhale 9156266360

No	Product / Service Name	Quantity	Unit Price	Amount
1	TATA Power Solar - Rooftop Solar Power Generating system 15Kwp - Includes Fitting, Installation with 5 Years Warranty for Balance of System and 25 Years Performance Warranty for panels- as received from Company	1.00	₹ 9,13,500.00	

Authorized Signatory

Subtotal
CGST 5% (2.5%)
SGST 5% (2.5%)
Rounded off

Total Amount ₹ 9,13,500

₹ Nine Lakh Thirteen Thousand Five Hundred Only

Note:
Our Bankers: Bank of India, Solapur Main Branch
A/c No 0705 3011 0000028 (IFSC BKID0000705)

True copy

Acting Principal
Vidnyan Mahavidyaleya ,Sangola
Tal.Sangola Dist.Solapur

Project Completion Report for Solar Power Plant		
S.No	Component	Observation
1	**Work Order No**	NIL
	Work Order Date	07/02/2018
2	**Category :- Govt. / Private Sector**	Educational Institute
	Site/ Location with Complete Address	**The Principal, Vidnyan Mahavidyalaya, SANGOLA 413307. Tal- Sangola Dist - Solapur**
	Longitude/ Latitude	17.4328, 75.1852
3	**Capacity of System Installed (kWp)**	15 KWp
4	**Specification of the Modules**	
	Type of modules(multi/mono)	Multi Crystalline
	Make of Modules	Tata Power Solar
	Year of Manufacturing	2017
	Wattage	325 Wp
	No of modules	48
	Module Efficiency	16.5
	No of series &Parallel combinations	4x12 No of Panels
	Tilt Angle of Modules	17° Approx
	IEC certificate (Enclose IEC Certificate)	IEC61730, IEC61215, IEC61701, IEC62716
	Whether imported or indigenous.	Indigenous
	RFID tag is pasted inside or outside	Inside
	Type of RFID	Laminated Inbuilt
5	**PCU**	
	Make	Goodwe
	Rating	15000 W
	Type of Charge controller/MPPT	Transformerless
	Capacity of inverter	15 KW
	Year of manufacturing	2017
	AC Output	400 V
	Whether hybrid or stand alone	Stand Alone
	Whether indigenous or imported	Imported
	(Enclose test certificate as per MNRE requirement)	Yes
	Input Voltage to Inverter	400 V
7	**Structures**	
	Tracking or non tracking	Non-Tracking
	Indigenous or Imported	Indigenous
8	**DC Cables Make and size**	KEI / 4 Sq MM
	Voltage of Cable	1100 VDC
9	**Distribution Box**	Both AC & DC Provided
	Make	Tata Power Solar
10	**Earting and Protections**	Yes, Provided
	Lightening Arrester	Yes, Provided
11	**Monitoring Mechanism for the Installed System**	N.A.

It is to certify that all the components / subsystems and materials including junction boxes, cables and distribution boards. Switches, circuit barkers used are as per MNRE / MEDA requirement and as per DPR submitted.

	Enclosures Details	No of Pages
1	Datasheet of Modules installed	2
2	System Connection Single Line Diagram of Installation	1
3	Technical Specifications of Solar PCU	2
4	IEC Certificates for Modules	4
5	Test Certificate for PCU as per MNRE Requirement.	4
6	Site Location Details	1
7	Solar Invertere Compliance Details	2

Date : 31-03-2018
Place

Acting Principal
Vidnyan Mahavidyalaya ,Sangola
Tal.Sangola Dist.Solapur

8. Towards a Healthy & Sustainable Institution

8.1 Inputs by Greenvio Solutions

Based on the analysis of the study of premises in addition to the recommendations provided in each section of Ecological, Water, Waste and Energy Audit the College can adopt the following strategies towards a Healthy and Sustainable Institution practices.

a) **Terrace farming -** There can be provision of terrace farming alongside the Canteen on Terrace and kitchen garden practices in a designated area of the open space this would enhance the biodiversity and be useful in training students and staff about the healthy practices and vegetables grown which would be used in Canteen. It helps in capacity building as well as the smaller steps taken have huge impacts when each student would adopt these practices in their homes or societies and grow kitchen garden, terrace garden there will be a long term benefit for the environment as a whole.

b) **Cutlery in the Canteen –** The regular plastic and steel plates, spoons used in Canteen can be replaced with eco-friendly and organic leaves, paper straw, disposable plates, edible spoons and tables made out of sugarcane waste or bamboo. This will be first of its kind initiative to be adopted and practiced thus also inculcating the healthy practices in students.

c) **Waste vio –** Stepping up a little further an initiative can be undertaken wherein College can tie up with an organisation and students can be encouraged to collect dry waste and electronic waste such as newspapers, old computers and others and hand over to organisation on a weekly or monthly basis thereby making a waste reduction approach in the community. This has benefits such as awareness, eco-friendly habits in becoming a responsible citizen.

8.2 Survey Results

An online survey was conducted to analyse the student and staff views about what changes according to you can be undertaken for Green audit improvement in College premises and activity, some of the key responses are listed below. Whereas many responses **stated there were no changes requires because the present practices are excellent.**

- Nothing
- No changes
- No suggestions

Some of the changes suggested are as follows

- Plant trees like Banyan and *Peepal* that release more oxygen.
- Motivate the plantation of trees and clean environment
- Conduct Environmental awareness programmes.

However, it should be noted that the College has taken up multiple initiatives and because of Pandemic the students have not practically visited the premises so many of these points are not mandatory at the moment.

Room no-63, multi-purpose hall

Room no. 9 English dept. 10:56 AM

Solar plant 9:51 AM

Room No 48, Phy B.Sc.III Lab & Lecture Hall 10:12 AM

ROOM NO.7 N.S.S

9. References

1. Uniform Plumbing Code – India, 2008
2. IGBC Green Existing Buildings – Operation & Maintenance (O&M) Rating system, Pilot version, Abridged Reference Guide, April 2013
3. IGBC Green Landscape Rating system, March 2013
4. BOMA Canada Waste Auditing Guide, Best Environmental Standards, BOMA BEST - Canada
5. Climate data https://en.climate-data.org/asia/india/maharashtra/solapur-2803/
6. Used only for understanding Universal design - Universal accessibility Guidelines for Pedestrian, Non-motorizes vehicle and Public Transport Infrastructure – Report guidelines by Samarthyam (National centre for Accessible Environments) – an initiative supported by Shakti Sustainable Energy Foundation.

Green Audit

2019-20 & 2020-21

AUDIT REPORT

Includes Environment, Energy and Green Audit

Studied for

Sangola Taluka Shetkari

Shikshan Prasarak Mandal Sangola's

Vidnyan Mahavidyalaya Sangola

Taluka Sangola, District Solapur

Pincode 413 307 (Maharashtra)

Analysed by

Greenvio Solutions

27 January 2022

Background reference image Nic Y C Gua on unsplash

Disclaimer

Green Audit Team has prepared this report for **Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola's Vidnyan Mahavidyalaya Sangola** located at *Taluka Sangola, District Solapur, Pincode 413 307 (Maharashtra)* based on input data submitted by the College analysed by the team to the best of their abilities.

The details have been consolidated and thoroughly studied as per the various guidelines for Green Buildings available in National Standards, the report has thereby been generated based on comparative analysis of the existing facilities and the benchmarks. The suggestions derived as a result of the inspection and research as per inputs which would further enhance and develop a Healthy and Sustainable Institution.

These can be implemented phase wise or as a whole warranty or undertaking, express or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

The audit is a thorough study based on the inventory and on-site investigation of data collected over a period of time and should not be used for any legal action. This is the property of Greenvio Solutions and should not be copied.

Greenvio Solutions

Developing Healthy and Sustainable Environments

We are an Environmental and Architectural Design Consultancy firm

Sustainable Academe is our department for conducting Audits

Palghar District, Maharashtra- 401208

sustainableacademe@gmail.com

Introduction

About the Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola

It was established in 23-Sep-1991, with **the aim of giving availability and facility of education to socially backward society,** to Bahujan society including **Harijan, Girijan, farmers, labours and socially deprived**. Receiving immense progress in the region of Sangola Taluka since its establishment, the Sanstha has started High School Department, Professional Courses of 10+2 Section and Vidnyan Mahavidyalay.

Assessment of the College

Affiliations - The College is affiliated to Punyshlok Ahilyadevi Holkar Solapur University.

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

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

Cycle	First	Second	Third
CGPA	0	2.76	2.24
Grade	B	B	B
Year	2004	2012	2018

Table 1: NAAC Accreditation details of the College

The college is due to enter its Fourth cycle of NAAC soon.

Total Institute Area & College Building Spread Area

The **total site area is 7 acres** and **total built-up area is 41,652.34 sq. ft.** for approx. 1,599 footfalls.

Environment Audit

The details of the plantations in the premises is as follows:

S.No	Botanical Name	Vernacular name	Family	Nos
Plants found in the overall premises				
1	*Cocus Nucifera*	Cocount	Arecaceae	1
2	*Emblica Officinalis*	Avala	Euphorbiaceae	1
3	*Cycas Revolute*	Cycas	Cycadacea	2
4	*Jatropha Curcas*	Yearand	Euphorbiaceae	4
5	*Murrya Koenigii*	Kadipatta	Rutaceae	2
6	*Bougainvillea Glabra*	Bougainvel	Nyctginaceae	11
7	*Polyalthia Longifolia*	Ashok	Ceasalpinaceae	17
8	*Hyophorbegeni Caulis*	Bottle palm	Aracaceae	9
9	*Azadirachta Indica*	Neem	Meliaceae	24
10	*Sennasulfurea*	Mothatarwad	Ceasalpinaceae	2
11	*Grevillea Robusta*	Silver oak	Protaceae	3
12	*Hibiscus Trionum*	Trionum	Malvaceae	3
13	*Bauhinia Variegate*	Kanchan	Fabacaeae	3
14	*Sesbania Grandiflora*	Shevari	Fabacaeae	1
15	*Platycladus Orientalis*	More pankhi	Cupressaceae	3
16	*Catharanthus Roseus*	Sadafuli	Apocynaceae	2
17	*Ficus Racemosa*	Umber	Moraceae	11
18	*Tecoma Rosea*	Ghantiful	Bignoniaceae	15
19	*Tecoma Campensis*	Ghantiful	Bignoniaceae	15
20	*Tabernaemontana Divaricata*	Tagar(Ananta)	Apocynaceae	25
21	*Pandanus Variegated*	pandan	Pandanaceae	9
22	*Acalypha Hispida*	Kuppikhokali	Euphorbiaceae	12
23	*Acalypha Alba*	Kuppikhokali	Euphorbiaceae	15
24	*Nerium Indicum*	Kanher	Apocynaceae	18
25	*Lilium (Lily)*		Lilieae	9

26	*Codiaeum Variegatum*	Croton	Euphorbiaceae	4
27	*Tinospora Cordifolia*	Gulvel	Menispermaceae	2
28	*Jatropa Integerrima*	Peregrine	Euphorbiaceae	1
29	*Delonix Regia*	Gulmohar	Fabaceae	7
30	*Sansevieria Trifasciata*	Sanke plant	Asparagaceae	12
31	*Euphorbia Macrocarpus*	Lady's slipper	Euphorbiaceae	5
32	*Wodyetia Bifurcate*	Foxtail palm	Arecaceae	2
34	*Phoenix Dactylifera*	Palm	Arecaceae	2
35	*Hibiscus Rosa-Sinensis*	Jaswand	Malvaceae	2
36	*Jacaranda Mimosifolia*	Nilmohor	Bignoniaceae	1
37	*Samanea Saman*	Rain Tree	Fabaceae	1
38	*Tabebuia Rosea*	Pink poui	Bignoniaceae	1
39	*Ficus Benjamina*	Weeping fig	Moraceae	1
40	*Nephrolepis Exaltata*	Sword fern	Nephrolepidaceae	1
41	*Dracaena Marginata*	Dragon tree	Asparagaceae	2
42	*Withania Somnifera*	Ashwgandha	Solanaceae	2
43	*Bismarckia Noblis*	Fan Palm	Arecaceae	2
Plants found in garden and shaded net area				
44	*Durantaerecta*	Golden duranda	Verbenaceae	5
45	*Annonareticulata*	Custard Srapple	Annonaceae	2
46	*Jovibarbaheuffelii*	Cactus	Cactaceae	4
47	*Bryophyllumpinnatum*	Panfuti	Crassulanceae	5
48	*Aloe Vera*	korfad	Liliaceae	5
49	*Abeliatriflora*	Sher	Caprifoliaceae	1
50	*Abelmoschusmanihot*	Allu	Malvaceae	1
51	*Aspidiumspinulosum*	Fern	Osmundaceae	2
52	*Platycladusorientalis*	Morpankhi	Cupressacae	2
53	*Hibiscus Trionum*	Trionum	Malavaceae	4
54	*Polysciasfruticosa*	Arerlia	Araliaceae	5
55	*Thamustinctorius*	Dressigna	Asteraceae	1
56	*Chrysalidocarpuslutescens*	Areca palm	Arecaceae	6

57	*Asparagus Racemosus*	Shatavari	Asparagaceae	1
58	*Psidiumguajava*	Peru	Rubiaceae	1
59	*Sesbaniagrandiflora*	Shevari	Fabaceae	10
60	*Calotropisgigantea*	Rui	Asclepiadaceae	1
61	*Ficusracemosa*	Umber	Moraceae	2
62	*Neriumindicum*	Kanher	Apocynaceae	2
63	*Tecomarosea*	Ghantiful	Bignoniaceae	1
64	*Tecomacampensis*	Ghantiful	Bignoniaceae	1
65	*Acalyphahispida*	Kuppikhokali	Euphorbiaceae	2
66	*Acalypha Alba*	Kuppikhokali	Euphorbiaceae	1
67	*Jatropacurcus*	Mogli	Euphorbiaceae	1
68	*Hyophorbegenicaulis*	Bottle palm	Aracaceae	3
69	*Cocusnucifera*	Cocount	Arecaceae	1
70	*Rosa Centifolia*	Gulab	Rosaceae	1
71	*Rosa Indica*	Gulab	Rosaceae	2
72	*Syzygiumcumini*	Jambul	Myrtaceae	1
73	*Ocimumsantum*	Tulas	Lamiaceae	7
74	*Hibiscus Rosa-Sinensis*	Jaswand	Malvaceae	1
75	*Hamelia Patens*	Firebush	Rubiaceae	1
76	*Plumeriarubra*	Red frangipani	Apocynaceae	1
78	*Plumeria Alba*	White frangipani	Apocyanaceae	1

Table 2: List of Trees available in premises

Green practices audit

The Institution has undertaken the following initiatives through **excellent efforts** towards save environment measures.

- **Health camp**
- **Blood donation camp**
- **gender sensitisation**
- **Tree plantation**
- **Construction of *Vanrai Bandhra* (Check dam)**
- ***Swatch Bharat Abiyan***
- **National Technical Day celebrations**

Due to pandemic situation multiple activities could not be undertaken.

Energy Audit

The following analysis is combined for entire premises taking into considerations the duration before pandemic to understand the consumption pattern as post pandemic the premises is used only for a few hours.

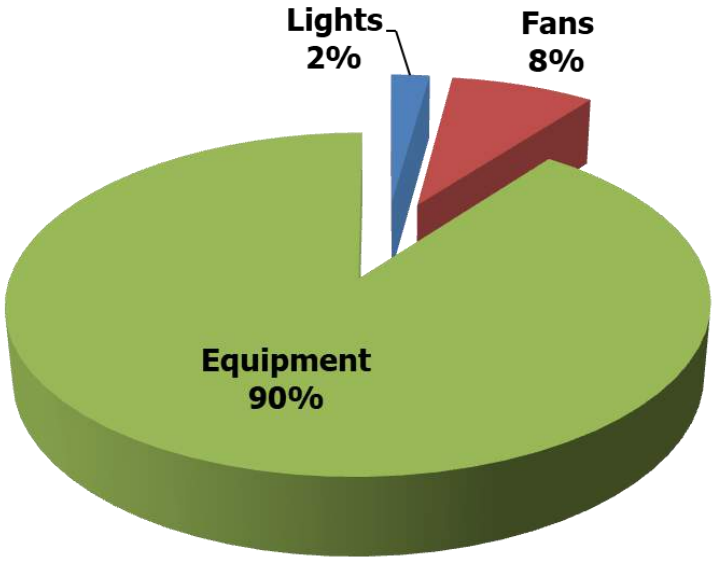


Figure 1: Summary of the Calculated Electrical Consumption as per inventory

The above graph shows that Equipment consumes 90% followed by Fans at 8% and Lights at 2% of the total calculated electrical energy.

'Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola's

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(Arts & Science, E.C.S. & B.C.A.)

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☎ Off. (02187) 220508

Mob. No. 9850792244

Email : vidnyanms@yahoo.co.in

Website : www.vmsasangola.org

Principal : Dr. S.M.Mulani

M.A.Ph.D. (Geography)

(Third Cycle Accredited by NAAC with 'B' Grade (CGPA of 2.24)

Ref. No.

Date : / /20

Sangola 413307

7.1.6: Quality audits on environment and energy-2022-23

Sr. No.	Name of the activity	Date
01	Water management	06/02/2023
02	Swachh Bharat Mission	04/02/2023
03	Planting trees	05/02/2023
04	Tree plantation	08/02/2023
05	Swachh Bharat Mission	09/02/2023
06	Pledge to plant trees	08/02/2023
07	My Vasundhara program	04/06/2022
08	Environment day	07/06/2022
09	World Bicycle Day	09/06/2022
10	Cleanliness campaign	30/09/2022
11	Planting trees	07/10/2022
12	Cleanliness campaign	27/11/2022
13	World Climate Day	27/03/2023

Dr. S.S. Dhasade
Coordinator,IQAC
Dr. Ganpatrao Deshmukh Mahavidyalaya,
Sangola Tal.Sangola Dist. Solapur

Principal
Dr.Ganpatrao Deshmukh Mahavidyalaya
Sangola Tal. Sangola Dist. Solapur

"सांगोला तालुका शेतकरी शिक्षण प्रसारक मंडळ, सांगोला" संचलित

विज्ञान महाविद्यालय सांगोला

(कला, विज्ञान, इ.सी.एस. व बी.सी.ए.)
ता. सांगोला, जि. सोलापूर, पिन. ४१३ ३०७ (महाराष्ट्र)

☎ ऑ.: (०२१८७) २२०५०८
मोबा. नं. ९४२१०४५९८७
e-mail : vidnyanms@yahoo.co.in
Website : www.vmssangola.org

प्रभारी प्राचार्य : डॉ. आर. ए. फुले
एम्.ए.पीएच.डी.

(पुण्यश्लोक अहिल्यादेवी होळकर सोलापूर विद्यापीठाशी संलग्नीत)
(Third Cycle Accredited by NAAC with 'B' Grade (CGPAof 2.24)

जावक क्र. समक्ष /2022-23

दिनांक : २५ / ०३ /२०२३

निमंत्रण पत्र

प्रति,

मा. दत्तात्रय देशमुख,
न्यु. इंग्लिश स्कूल, ज्यु. कॉलेज सांगोला
ता. सांगोला, जि. सोलापूर

विषय :-" जागतिक हवामान दिन" कार्यक्रमास प्रमुख पाहुणे म्हणून उपस्थित रहाणेबाबत...

महोदय,

आमचे महाविद्यालयामध्ये भूगोल विभाग अंतर्गत सोमवार दि.२७/०३/२०२३ रोजी सकाळी १०.३० वाजता " जागतिक हवामान दिन" कार्यक्रमास आपण प्रमुख पाहुणे म्हणून उपस्थित राहून आमच्या विद्यार्थ्यांना मार्गदर्शन करावे ही विनंती.

कळावे,

आपला विश्वासू,

प्रभारी प्राचार्य
विज्ञान महाविद्यालय,सांगोला
ता.सांगोला जि.सोलापूर

dc

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विज्ञान महाविद्यालय सांगोला

(कला, विज्ञान, इ.सी.एस. व बी.सी.ए.)
ता. सांगोला, जि. सोलापूर, पिन. ४१३ ३०७ (महाराष्ट्र)

☎ ऑ.: (०२१८७) २२०५०८
मोबा. नं. ९४२१०४५९८७
e-mail : vidnyanms@yahoo.co.in
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एम.ए.पीएच.डी.

(पुण्यश्लोक अहिल्यादेवी होळकर सोलापूर विद्यापीठाशी संलग्नीत)
(Third Cycle Accredited by NAAC with 'B' Grade (CGPA of 2.24)

जावक क्र. सम्म/ 2022-23 दिनांक : २७ / ०३ /२०२३

आभार पत्र

प्रति,

मा. दत्तात्रय देशमुख,
न्यु. इंग्लिश स्कूल, ज्यु. कॉलेज सांगोला
ता. सांगोला, जि. सोलापूर

महोदय,

आमचे महाविद्यालयामध्ये भूगोल विभाग अंतर्गत सोमवार दि.२७/०३/२०२३ रोजी सकाळी १०.३० वाजता " जागतिक हवामान दिन" कार्यक्रमास आपण प्रमुख पाहुणे म्हणून उपस्थित राहून आमच्या विद्यार्थ्यांना मोलाचे मार्गदर्शन केले त्याबद्दल महाविद्यालयाच्या वतीने आपले आभार !

प्रभारी प्राचार्य
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ता.सांगोला जि.सोलापूर

O/C

दि. 03-02-23 रोजी मौजे चिंचोली येथे विशेष श्रमसंस्कार शिबिर उद्घाटन प्रसंगी प्रस्तावना करताना प्रकल्प अधिकारी प्रा. डॉ. काकासाहेब घाडगे

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
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विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

दि. 03-02-23 रोजी मौजे निंबोणी येथे विशेष श्रमसंस्कार शिबीराचे
उद्घाटन करताना उद्घाटक डॉ बाबासाहेब देशमुख
(अध्यक्ष पुरोगामी युवक संघटना महाराष्ट्र)

कार्यक्रम अधिकारी
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दि. 03-02-23 मौजे चिंचोली येथे विशेष श्रमसंस्कार शिबिर उद्घाटन प्रसंगी मनोगत व्यक्त करताना महाविद्यालयाचे प्राचार्य प्रा.डॉ. रघुनाथ फुले (सर)

कार्यक्रम अधिकारी
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दि. 04-02-23 रोजी मौजे चिंचोली येथे विशेष श्रमसंस्कार शिबिरांतर्गत श्रमदानातून स्वच्छता करताना.

कार्यक्रम अधिकारी
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प्रभारी प्राचार्य
विज्ञान महाविद्यालय, सां[illegible]
ता. सांगोला जि. सोलापूर

दि. 04-02-23 मौजे चिंचोली विशेष श्रमसंस्कार शिबीर प्रसंगी वृक्षलागवड व वृक्षसंवर्धन काळाची गरज याविषयावर मा. शंकर शिंदे (वनविभाग) यांचे प्रबोधन

कार्यक्रम अधिकारी
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दि. 04-02-23 रोजी मौजे चिंचोली येथे विशेष श्रमसंस्कार शिबीरामध्ये मुख्यालयाचे संदर्भात गप्पा देताना मा. शंकर शिंदे (ग्रामपंचायत अधिकारी)

कार्यक्रम अधिकारी
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दि: 05-02-23 रोजी मौजे चिंचोली येथे विशेष श्रमसंस्कार शिबीरामध्ये ग्रामपंचायत परिसर, हनुमान मंदिर स्वच्छ करताना.

कार्यक्रम अधिकारी
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दि. 05-02-23 रोजी मौजे चिंचोळी येथे विशेष श्रमसंस्कार शिबिरामध्ये मतदार जनजागृती या विषयावर प्रा. अशोक वाकडे मार्गदर्शन करताना.

कार्यक्रम अधिकारी
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ता. सांगोला जि. सोलापूर

दि. 05-02-23 रोजी मौजे चिंचोली येथे विशेष श्रमसंस्कार शिबिरामध्ये स्त्री-पुरुष समानता या विषयी प्रा. डॉ पांडुरंग रूपनर मार्गदर्शन करताना

कार्यक्रम अधिकारी
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प्रभारी प्राचार्य
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दि. 06-02-23 रोजी मौजे चिंचोली येथे विशेष श्रमसंस्कार
शिबिराबद्दल लेख वाचवा ईमेल संपला

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
विज्ञान महाविद्यालय,सांगोला

प्रभारी प्राचार्य
विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

दि. 06-02-23 रोजी मौजे चिंचोली येथे विशेष श्रमसंस्कार शिबीर प्रसंगी स्वयंसेवकांना मार्गदर्शन करताना डॉ. रंजना मुडाघुले (विभागीय समन्वयक रा.से.यो. पु.वि.वि. सोलापूर विद्यापीठ)

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
विज्ञान महाविद्यालय,सांगोला

प्रभारी प्राचार्य
विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

दि. ०१-०२-२३ रोजी मौजे चिंचोली येथे विशेष श्रमसंस्कार शिबिराच्या
चिंचोली - सांगोला रोड स्वच्छता करताना

प्रभारी प्राचार्य
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ता. सांगोला जि. सोलापूर

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
विज्ञान महाविद्यालय, सांगोला

दि. 07-02-23 रोजी मौजे चिंचोली विशेष श्रमसंस्कार शिबीरा-
मध्ये व्यसनमुक्ती या विषयावरती मार्गदर्शन करताना
प्रा. दीपक शेळके सर

कार्यक्रम अधिकारी
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विज्ञान महाविद्यालय,सांगोला

प्रभारी प्राचार्य
विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

दि. ०४-०२-२३ रोजी मौजे चिंचोली येथे विशेष श्रमसंस्कार शिबीरामध्ये बालविवाह जनजागृती या विषयी मार्गदर्शन करताना ॲड. राजेश्री केदार.

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
विज्ञान महाविद्यालय, सांगोला

प्रभारी प्राचार्य
विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

दि. 08-02-23 रोजी मौजे चिंचोली येथे विशेष श्रमसंस्कार शिबीरामध्ये जिल्हा परिषद शाळा चिंचोली येथे श्रमदान करताना.

कार्यक्रम अधिकारी
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प्रभारी प्राचार्य
विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

दि. ०९-०२-२३ रोजी मौजे चिंचोली येथे विशेष श्रमसंस्कार शिबीर समारोप प्रसंगी मार्गदर्शन करताना मा. चिंतामणि विठ्ठलरावजी शिंदे सर

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
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प्रभारी प्राचार्य
विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

दि. 09-02-23 रोजी मौजे चिंचोली येथे विशेष श्रमसंस्कार शिबीर समारोप प्रसंगी आभार मानताना प्रा. डॉ. सौ. सिमा शिवशरण

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
विज्ञान महाविद्यालय, सांगोला

प्रभारी प्राचार्य
विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

'Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola's

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(Arts & Science, E.C.S. & B.C.A.)

Tal. Sangola Dist. Solapur Pin. 413 307 (Maharashtra)

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Mob. No. 9850792244

Email : vidnyanms@yahoo.co.in

Website : www.vmsasangola.org

Principal : Dr. S.M.Mulani

M.A.Ph.D. (Geography)

(Third Cycle Accredited by NAAC with 'B' Grade (CGPA of 2.24)

Ref. No.

Date : / /20

Sangola 413307

7.1.6: Quality audits on environment and energy-2022-23

Sr. No.	Name of the activity	Date
01	Water management	06/02/2023
02	Swachh Bharat Mission	04/02/2023
03	Planting trees	05/02/2023
04	Tree plantation	08/02/2023
05	Swachh Bharat Mission	09/02/2023
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08	Environment day	07/06/2022
09	World Bicycle Day	09/06/2022
10	Cleanliness campaign	30/09/2022
11	Planting trees	07/10/2022
12	Cleanliness campaign	27/11/2022
13	World Climate Day	27/03/2023

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Coordinator,IQAC
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Sangola Tal.Sangola Dist. Solapur

Principal
Dr.Ganpatrao Deshmukh Mahavidyalaya
Sangola Tal. Sangola Dist. Solapur

दि. 04-06-22 रोजी माझी वसुंधरा अंतर्गत स्वच्छता अभियान कार्यक्रम घेतली.

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
विज्ञान महाविद्यालय, सांगोला

प्रभारी प्राचार्य
विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

दि 07-06-22 रोजी पर्यावरण दिनाचे महत्व
सांगोला महाविद्यालयचे प्रभारी

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
विज्ञान महाविद्यालय,सांगोला

प्रभारी प्राचार्य
विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

दि ०७-०६-२२ रोजी सामाजिक सायकल दिन रॅलीचे आयोजन

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
विज्ञान महाविद्यालय, सांगोला

प्रभारी प्राचार्य
विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

दि. 21-06-22 रोजी योगा दिन कार्यक्रम घेतला.

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
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विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

दि ०६-०८-२२ रोजी डॉ गणपतरावजी देशमुख साहेब यांच्या जयंती निमित्त रक्तदान शिबीर घेतला

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रक्तदान शिबिर

कार्यक्रम अधिकारी
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विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

दि. 12-08-22 रोजी अमृत महोत्सव निमित्त सांगोला महाविद्यालय रॅली काढण्यात आली.

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
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ता. सांगोला जि. सोलापूर

दि २०-०८-२२ रोजी व्यसनमुक्ती या कार्यक्रमाच्ये
प्रमुख पाहुणे प्रा.रोकडे सर स्वयंसेवकांना
मार्गदर्शन करताना

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
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प्रभारी प्राचार्य
विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

दि 24-09-22 रोजी राष्ट्रीय सेवा योजनेचा वर्धापन दिन साजरा करताना डॉ बबनराव गायकवाड.

कार्यक्रम अधिकारी
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विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

दि. 30-09-22 रोजी मौजे शिवणे, ता. सांगोला येथे स्वच्छ भारत अभियान कार्यक्रम घेतला.

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
विज्ञान महाविद्यालय, सांगोला

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विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

दि. 30-09-22 रोजी मौजे शिवणे ता. सांगोला येथे लोक जागृती रॅली काढताना

कार्यक्रम अधिकारी
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दि. 03-10-22 रोजी महात्मा गांधी जयंती साजरी करताना प्रमुख पाहुणे डॉ. मेहेर खाडे.

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
विज्ञान महाविद्यालय, सांगोला

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दि. 07-10-22 रोजी राष्ट्रीय सेवा योजना व वनविभाग, मौजे शिवणे येथे वृक्षारोपण करताना

कार्यक्रम अधिकारी
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विज्ञान महाविद्यालय, सांगोला

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दि. 07-10-22 रोजी राष्ट्रीय सेवा योजना व वनविभाग यांचे संयुक्त श्रमदान करताना

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
विज्ञान महाविद्यालय, सांगोला

प्रभारी प्राचार्य
विज्ञान महाविद्यालय, सां[illegible]
ता. सांगोला जि. सोलापूर

मौजे · शिवणे वृक्षलागवड करतांना.

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
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विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

दि 16-12-22 रोजी मतदार जनजागृती करताना
प्रमुख पाहुणे अशोक काळे

कार्यक्रम अधिकारी
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दि 22-12-22 रोजी संत गाडगे बाबा स्मृती दिन कार्यक्रम प्रसंगी प्रकल्प अधिकारी प्रा. डॉ कामसोबत गाडगे स्वयंसेवकांना मार्गदर्शन करताना

कार्यक्रम अधिकारी
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दि. 20-02-23 रोजी शिवजयंती कार्यक्रम प्रमुख पाहुणे डॉ. कुलकर्णी सर [illegible] उपस्थितीत संपन्न झाला

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
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दि. २३-०२-२३ रोजी संत गाडगे बाबा जयंती कार्यक्रमा प्रमुख पाहुणे प्रा. डॉ. पंढरंग स्लमार सर यांच्या उपस्थितीत साजरी

प्रभारी प्राचार्य
विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
विज्ञान महाविद्यालय, सांगोला

दि. 08-03-23 रोजी जा. प्रमुख पाहुण्या प्रा. निलिमा
मिसाळ यांच्या उपस्थितीत महिला दिन साजरा

कार्यक्रम अधिकारी
राष्ट्रीय सेवा योजना
विज्ञान महाविद्यालय, सांगोला

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विज्ञान महाविद्यालय, सांगोला
ता. सांगोला जि. सोलापूर

Environment Audit

Study Period (Two Years) 2021 – 2022 & 2022 - 2023

Sustainability study

RENEWAL AUDIT REPORT

Studied for

Sangola Taluka Shetkari Shikshan

Prasarak Mandal Sangola's

Dr. Ganpatrao Deshmukh Mahavidyalaya Sangola

Tal. Sangola, District Solapur,

Pincode 413 307, Maharashtra, India

Studied in the capacity of

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Email: greenviosolutions@gmail.com

Valid till **31 January 2025**

Background reference image Nic Y C Gua on unsplash

Disclaimer

The Audit Team has prepared this report for the **Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola's Dr. Ganpatrao Deshmukh Mahavidyalaya Sangola** located at *Tal. Sangola, District Solapur, Pincode 413 307, Maharashtra, India* based on input data submitted by the Institute analysed by the team to the best of their abilities.

The details have been consolidated and thoroughly studied as per the various guidelines for Green Buildings available in National and International Standards; the report has been generated based on a comparative analysis of the existing facilities and the prerequisites formulated by various standards. The inputs derived are a result of the inspection and research. These will further enhance and develop a Healthy and Sustainable Institution.

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The Study is conducted incapacity of an Accredited & Certified Green Building Professional with extensive experience.

Ar. Nahida Abdulla
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Acknowledgment

The Audit Assessment Team thanks the **Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola's Dr. Ganpatrao Deshmukh Mahavidyalaya Sangola, Maharashtra** for assigning this important work of Environment Audit. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are extended are due to **Dr. Sikkandar Musa Mulani**, (Principal).

We are also thankful for **Institute Taskforce** who have collected the data required **–**

- **Green Audit Coordinator** - Dr. Suryavanshi Rajendra Shankar
- **Green Audit committee members** - Dr. Manoj Waghmode, Dr. Sushilkumar Randive and Dr. Mahadevi Jundale.
- **Lab attendant** - Mr. V. B. Gusale and Mr. Jungle P. T.

We highly appreciate the assistance of the **entire Teaching, Non-teaching, and Admin staff** for their support while collecting the data.

Sustainable Academe
Brand of Greenvio Solutions, Palghar District, Maharashtra- 401208

Contents

1. Introduction

1.1 About the functioning of the Institution

The Institution Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola, was established in 23-Sep-1991, with the aim of giving availability and facility of education to socially backward society, to Bahujan society including Harijan, Girijan, Farmers, Labours and socially deprived from progress in the region of Sangola Taluka since its establishment.

1.2 Statements of the Institution

Vision

- *To provide quality higher education to the students from socio-economically background and the poor family, and friendly atmosphere for teaching, learning and research process*
- *To shape the students in becoming globally competent, skilled and socially oriented human power*

Mission

- *To provide the facilities of education to the students who are from economically weaker section of the society from deprived lot*
- *To make the students aware of human ethics, culture and heritage*
- *To create the better manpower for the nation*

1.3 Populace analysis

1.3.1 Students and staff data (Academic year 2021-2022)

The premises had **965 male and 696 female stakeholders**.

1.3.2 Students and staff data (Academic year 2022-2023)

The premises had **1,129 male and 739 female stakeholders**.

2. Compliance

The compliance study was carried out through investigative ways. This was done to understand the **extent of suggestions and their implementations based on previous report of Academic years 2019-2020 and 2020-2021.** The renewal is for academic years 2021-2022 and 2022-2023.

2.1 Compliance status

The details of compliance state that no change has been implemented.

2.2 Compliance technical study

Around 5 students and 3 staff members use cycles for commuting to and fro to the campus. This highlights the green practices of the Campus.

College has not taken any measure towards 'Fire and Life Safety Measures'

3. Observations

Investigative suggestions

The following suggestions can be implemented ***in next one year***. The Institute can execute a plan after discussion with Project Head.

- **Extra care for the rooftop areas**
  - Introduce the signboards about 'No students are allowed to enter this area'
  - Upgrade the space as cool roof by painting it with cooltop material.

- **Messages on the beam area**

  Include quotes and messages from eminent personalities all over the premises on beam for inspiration and beautification.

- **Inspirational timelines on the blank interior facades**

  Include quotes, messages, timelines, details about specific subject or career prospects in the interior areas for inspiration and beautification.

- **General aspects**
  - Upgrade the website w.r.t. green initiatives

4. Inferences

Entire site recommendations

The following suggestions can be implemented ***in next two years***. The Institute can execute a plan after discussion with Project Head.

4.1 Site beautification

- **Beautification of the entrance pathway -** The existing bricks (waste from the existing new construction going on) can be used or upgraded the pathway through an appropriate Landscape Architecture design.
- **Bird house/ Feeders -** At appropriate locations there can be provisions for drinking water and some grains for birds as they visit the site much frequently.
- **Garden development**
  - *Nursery documentation, expansion and beautification* – The premises should have a nursery, details can be decided as per the landscape beautification.
  - *Scientific name plates and QR codes* – The team should undertake a project to have name plates with QR codes on every plant of the premises.

4.2 Heat island reduction

Cool rooftops - The Terrace rooftops should be painted with Cooltop – reflective materials to reflect the harsh sun rays and reduce the heat absorption in the top most floor and surrounding areas of the building.

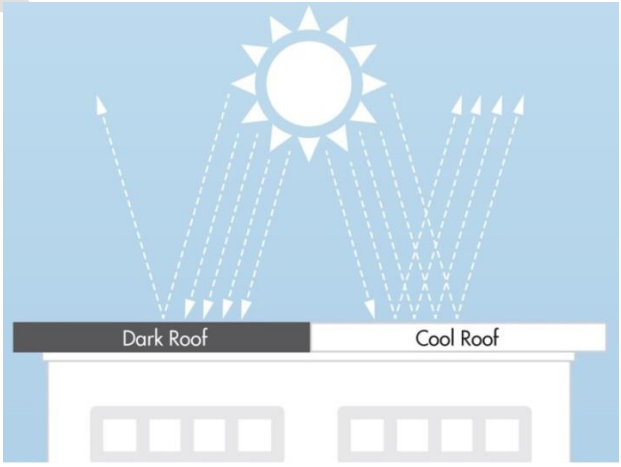

Plate 1: Cool roof comparative analysis (For reference purpose only)

Source: Image by https://www.gaf.com/en-us/blog/six-truths-about-cool-roofs-281474980105387

4.3 Life safety

- **Combustible equipment** - Every space which has a gas cylinder or combustible equipment should have a provision for the barricade around the gas cylinders, appropriate safety board's mentioning 'danger sign' and 'Do not touch' with an additional small fire extinguisher close by.

- *The **fire and life safety signages (Including exit signages)** should be increased and displayed.*

- *There should be a **PASS Board** alongside every fire extinguisher and a **RACE Board** at the location of extreme populace/ footfalls.*

Reference suggestions 1: PASS Board display

4.4 Pollution Control

- **Bicycles as a gift -** As an appreciation gesture maybe the student's toppers/ staff best performers can be awarded a bicycle occasionally.

- **Plant more carbon dioxide absorbing plants -** The following plantations should be planted as they will help in Carbon neutralisation.

- Pine – It is known for its ability to sequester carbon.

  (https://www.single.earth/blog/which-trees-absorb-the-most-carbon#:~:text=Pine%20trees%20as%20carbon%20sinks,their%20ability%20to%20sequester%20carbon.&text=These%20trees%20are%20found%20in,also%20make%20good%20landscape%20plants)

- Neem – It helps to reduce greenhouse gases through photosynthesis absorbing large quantities of CO_2 and producing oxygen.

  (https://neemfoundation.org/greening-india-with-neem/#:~:text=The%20planting%20of%20Neem%20trees,of%20CO2%20and%20producing%20oxygen)

- Peepal – It can uptake CO_2 during the night as well because of its ability to perform a type of photosynthesis called Crassulacean Acid Metabolism (CAM) *(https://nurserylive.com/blogs/sustainable-living/do-you-know-plants-that-give-oxygen-24-hours#:~:text=2.-,Peepal,Crassulacean%20Acid%20Metabolism%20(CAM))*

- Bamboo - It can absorb as much as 12 tonnes of carbon dioxide per hectare per year, giving the plant a potentially crucial role in stabilising our planet's atmosphere.

  (https://www.thequardian.com/environment/2003/mar/20/research.science#:~:text=Research%20in%20Japan%20and%20elsewhere,in%20stabilising%20our%20planet's%20atmosphere) and https://www.nelda.org.in/15-indian-trees-that-produce-the-most-oxygen

- Teak – It has the highest capacity for carbon sequestration among trees in India. This is the finding of a study conducted by the Gujarat Ecological Education and Research (GEER).

  (https://timesofindia.indiatimes.com/city/ahmedabad/teak-absorbs-max-co2-from-air-helps-check-global-warming/articleshow/51721842.cms)

5. Compilation

The study is based on the data collected, analysed, rechecked, and confirmed through multiple modes. For the quality study, some standards/ notes have been referred to. These are listed and noted below. However, no direct references have been used anywhere. These are used as a base to analyse and study the data collected.

- Uniform Plumbing Code – India, 2008
- IGBC Green Existing Buildings – Operation & Maintenance (O&M) Rating system, Pilot version, Abridged Reference Guide, April 2013
- IGBC Green Landscape Rating system, March 2013
- BOMA Canada Waste Auditing Guide, Best Environmental Standards, BOMA BEST – Canada
- Used only for understanding Universal design - Universal Accessibility Guidelines for Pedestrian, Non-motorized vehicle and Public Transport Infrastructure – Report guidelines by Samarthyam (National center for Accessible Environments) – an initiative supported by Shakti Sustainable Energy Foundation and www.umassd.edu
- The city of Cheyenne, Streetscape/ Urban Design elements - Wyoming Planning Association, Gillette, Wyoming, United States

ENERGY AUDIT

STUDY PERIOD (TWO YEARS) 2021 – 2022 & 2022 - 2023

Sustainability study

RENEWAL AUDIT REPORT

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Background reference image Janko Ferlic on pexels

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Acknowledgment

The Audit Assessment Team thanks the **Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola's Dr. Ganpatrao Deshmukh Mahavidyalaya Sangola, Maharashtra** for assigning this important work of Energy Audit. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are extended are due to **Dr. Sikkandar Musa Mulani**, (Principal).

We are also thankful for **Institute Taskforce** who have collected the data required **–**

- **Green Audit Coordinator** - Dr. Suryavanshi Rajendra Shankar
- **Green Audit committee members** - Dr. Manoj Waghmode, Dr. Sushilkumar Randive and Dr. Mahadevi Jundale.
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Sustainable Academe
Brand of Greenvio Solutions, Palghar District, Maharashtra- 401208

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1. Introduction

1.1 About the functioning of the Institution

The Institution Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola, was established in 23-Sep-1991, with the aim of giving availability and facility of education to socially backward society, to Bahujan society including Harijan, Girijan, Farmers, Labours and socially deprived from progress in the region of Sangola Taluka since its establishment.

1.2 Statements of the Institution

Vision

- *To provide quality higher education to the students from socio-economically background and the poor family, and friendly atmosphere for teaching, learning and research process*
- *To shape the students in becoming globally competent, skilled and socially oriented human power*

Mission

- *To provide the facilities of education to the students who are from economically weaker section of the society from deprived lot*
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1.3 Populace analysis

1.3.1 Students and staff data (Academic year 2021-2022)

The premises had **965 male and 696 female stakeholders**.

1.3.2 Students and staff data (Academic year 2022-2023)

The premises had **1,129 male and 739 female stakeholders**.

2. Compliance

The compliance study was carried out through investigative ways. This was done to understand the **extent of suggestions and their implementations based on previous report of Academic years 2019-2020 and 2020-2021.** The renewal is for academic years 2021-2022 and 2022-2023.

2.1 Compliance status

The details of compliance state that no change has been implemented.

2.2 Compliance comparative study

The information for the existing nos. of electrical appliances and their power consumption is documented below.

- **Lights – Source of electrical usage**
  - The current data shows there are **12 Non-LED lights contributing to 876 kWh of energy.**
  - Since the total numbers are extensive bulk replacement is not recommended. Whenever the appliances are not, in working conditions, they are suggested to be replaced and this has been in practice as well.

- **Fans – Source of electrical usage**
  - The current data shows there are **123 nos. of Ceiling fans contributing to 7,016 kWh of energy.**
  - Since the total numbers are extensive bulk replacement is not recommended. Whenever the appliances are not in working conditions they are suggested to be replaced and this has been in practice as well.

- **Air conditioners – Source of electrical usage**

The current data shows there are **no of air conditioners contributing to any energy.**

2.3 Compliance technical study

The internal team has shared the following data.

Month	June 2021-May 2022		June 2022 - May 2023	
	Unit	Bill amount (Rs.)	Unit	Bill amount (Rs.)
June	0	0	996	7,969
July	0	0	1,102	9,768
Aug	0	0	1,052	9,346
Sept	0	0	524	4,888
Oct	0	0	1,058	9,396
Nov	0	0	180	1,984
Dec	0	0	736	6,678
Jan	0	0	751	6,805
Feb	0	0	443	4,204
Mar	0	373	163	1,840
April	308	2,824	326	3,216
May	960	7,698	573	5,549

Table 1: Electrical unit consumption study

The observation related to above information states:

- The **total amount** spent in past two years is **Rs. 82,538/-**
- The **average amount** spent every month are **Rs. 3,439/-**
- The **total units** consumed in past two years **~9,172 units (Electrical)**
- The **average units** consumed every month are **~382 units (Electrical)**
- The **total units** consumed in past two years is **zero units (Only solar)**
- The **average units** consumed every month are **zero units (Only solar)**
- **Alternate source of energy is 'NOT' available in any form**
- **The percentage of energy consumption met by alternate (solar (renewable)) source is 'ZERO'**

3. Observations

Investigative suggestions

The following suggestions can be implemented ***in next one year***. The Institute can execute a plan after discussion with Project Head.

Certain aspects noted below in red font should be upgraded as per the convenience of the Institute; these are common to the site and can be considered for entire premises wherever there are similar areas.

- **Earth pit zones**
  - Add signboard about 'Outdoor Electrical area'
  - Code the earthing pits.

- **DG and Transformer area**
  - Add safety *signages* such as 'Danger-do not touch' etc.
  - Add *signboards* about as 'Transformer areas' and 'Diesel Generator area'
  - Every user in this space should compulsorily jacket, helmet, gloves, boots while working and being a part of this space.

- **General safety aspects**
  - Rubber flooring in the laboratories to avoid an electric shock.
  - Introduce *'PASS' information board* about how to use Fire extinguisher and *'FIRE ZONE' display board* where safety equipments are kept.

4. Inferences

Entire site recommendations

The following suggestions can be implemented ***in next two years***. The Institute can execute a plan after discussion with Project Head.

Since the campus does not have any sources of alternate sources of energy, it would be highly suggestive to undertake certain measures to incorporate renewable sources of energy.

4.1 Replacement of non-energy efficient appliance

- Non-LED lights with energy efficient appliances
- Regular ceiling fans with energy efficient appliances
- Reduce nos. of air conditioners

4.2 Alternatives towards Smart premises mechanisms - Gardening

The Institute can undertake a Smart Gardening system using IoT Technology. This will result in saving time by scheduling time for watering; saving money through automated water schedules tracking dampness of soil to know when, how much water garden needs.

Plate 1: Solar farm concept for the Institute (For reference purpose only)
Image source: https://housing.com/news/smart-gardening/
Data source: https://www.happysprout.com/inspiration/what-is-smart-gardening/

5. Compilation

The study is based on the data collected, analysed, rechecked, and confirmed through multiple modes. For the quality study, some standards/ notes have been referred to. These are listed and noted below. However, no direct references have been used anywhere. These are used as a base to analyse and study the data collected.

Specific references for study related to energy

- https://www.energy.gov/eere/buildings/zero-energy-buildings
- https://www.dsaarch.com/zero-net-positive-energy
- U.S. Energy Information Administration
- https://ieeexplore.ieee.org/document/6779316
- https://www.murata.com/en-global/apps/industry/security/entranceandexitsystem
- https://www.energuide.be/en/questions-answers/what-are-the-alternatives-to-air-conditioning/2121/

GREEN AUDIT

STUDY PERIOD (TWO YEARS) 2021 – 2022 & 2022 - 2023

Sustainability study

RENEWAL AUDIT REPORT

Studied for

Sangola Taluka Shetkari Shikshan

Prasarak Mandal Sangola's

Dr. Ganpatrao Deshmukh Mahavidyalaya Sangola

Tal. Sangola, District Solapur,

Pincode 413 307, Maharashtra, India

Studied in the capacity of

Accredited and Certified

Green Building Professional

Studied by

Website: https://thegreenviosolutions.co.in/

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Valid till **31 January 2025**

Disclaimer

The Audit Team has prepared this report for the **Sangola Taluka Shetkari Shikshan Prasarak Mandal Sangola's Dr. Ganpatrao Deshmukh Mahavidyalaya Sangola** located at *Tal. Sangola, District Solapur, Pincode 413 307, Maharashtra, India* based on input data submitted by the Institute analysed by the team to the best of their abilities.

The details have been consolidated and thoroughly studied as per the various guidelines for Green Buildings available in National and International Standards; the report has been generated based on a comparative analysis of the existing facilities and the prerequisites formulated by various standards. The inputs derived are a result of the inspection and research. These will further enhance and develop a Healthy and Sustainable Institution.

These can be implemented phase-wise or as a whole depending on the decision taken by the Hon'ble Management and Institute. The warranty or undertaking, expressed or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements, or forecasts in the report.

The audit is a thorough study based on the inspection and investigation of data collected over a while and should not be used for any legal action. This is the property of Greenvio Solutions and should not be copied or regenerated in any form.

The Report is prepared by the Team of Greenvio Solutions under their brand and department – Sustainable Academe as Consultancy firm with the Project Head - Ar. Nahida Shaikh who is an Accredited and Certified Green Building Professional. Green Building consultancy is her forte and she is one of the most sought-after names when it comes to providing excellent quality services within the stipulated time frame.

The Study is conducted incapacity of an Accredited & Certified Green Building Professional with extensive experience.

Ar. Nahida Abdulla
Greenvio Solutions
Developing Healthy and Sustainable Environments
We are an Environmental and Architectural Design Consultancy Firm
Sustainable Academe is our department for conducting Audits
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2.1 Compliance status

The details of compliance state that no change has been implemented.

2.2 Compliance technical study

Multiple social and ecological initiatives have been undertaken as documented below:

a. Activities undertaken through NSS

i. 2021-22

1. Blood donation Camp
2. Tree Plantation
3. Swachh Bharat Abhiyan
4. Anniversary of Sant Gadage Baba
5. Bicycle Rally
6. Observation of Women Day
7. Constitution Day and Voters Awareness program
8. Swachata saptah
9. International Women's Day
10. World Environment Day
11. Public Awareness Rally on Voters registration
12. Child marriage Awareness
13. Swachh Bharat Abhiyan
14. Equality of Men and Women
15. Anti - addiction Day
16. NSS Anniversary
17. Swachh Bharat Mission
18. Save the female child camp
19. Women's Day
20. Azadi ka amrut mahatsav

ii. 2022-23

1. Blood donation Camp

2. Tree Plantation
3. Swachh Bharat Abhiyan
4. Anniversary of Sant Gadage Baba
5. Bicycle Rally
6. Observation of Women Day
7. Constitution Day and Voters Awareness program
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b. Activities undertaken through NCC

i. 2021-22

1. Celebration of Independence day
2. Republic Day celebration
3. Independence Day
4. Blood donation Camp
5. Tree Plantation
6. Swachh Bharat Abhiyan
7. Run for Unity
8. Har Ghar Tiranga Rally etc.
9. Pulse Polio program

ii. 2022-23

1. Celebration of Independence day
2. Republic Day celebration
3. Independence Day
4. Blood donation Camp
5. Tree Plantation
6. Swachh Bharat Abhiyan
7. Run for Unity
8. Har Ghar Tiranga Rally etc.
9. Pulse Polio program

3. Observations

Investigative suggestions

The following suggestions can be implemented ***in next one year***. The Institute can execute a plan after discussion with Project Head.

- **Water tanks in all areas**
  - Include the information about size, capacity and usage
  - Paint the tank in light blue colour
  - Add *signboards* about the usage such as 'Drinking' or 'Secondary'
  - Add *signboard and map* about the process/ system in practice

- **General aspects (Indoors areas)**
  - Zoning of the site w.r.t. space wise analysis
  - Signboards, signages, information and display boards at relevant locations.

- **Carpets**
  - Green carpets could be placed outside drinking water and toilet blocks.
  - This will add to hygiene areas and keep the water spillage under control.

- **Awareness displays**
  - E-waste management chart can be displayed in spaces that have computers such as offices and laboratories.
  - Going paperless, Print less etc. awareness boards could be displayed.

4. Inferences

Entire site recommendations

The following suggestions can be implemented ***in next two years***. The Institute can execute a plan after discussion with Project Head.

4.1 Green practices audit

- **Plant as a gift -** As a kind gesture, the guests visiting the premise can be asked to plant a small plant on the premise itself and they can be even given plants/bouquets from the flowers of the plants on the premise as a gift.

- **Environmental awareness -** There can be various slogans in local and national language on the compound wall giving the message of saving the environment through the joint efforts of the students and staff thereby making the student socially and environmentally responsible citizens.

- **Signages on the plants mentioning scientific names -** The practice of having the names of each plant and tree will provide awareness among the staff and students.

Reference suggestions 1: Signages on the plantations

4.2 Waste Audit

- **Multi-colored waste management bins -** There should be more number of dual litter dustbins at various locations in areas such as Canteen, and open spaces. This would inculcate the awareness of waste segregation among students. Whereas a single type of dry waste dustbin should be available inside the teaching areas.

Reference suggestions 2: Twin litter dustbins in the premises

- **Include better plastic/ E-waste management measures** - The Institute can celebrate one day of every month as a 'Plastic/ E-waste awareness day' The stakeholders (Students and staff members) can be asked to bring plastic/ E-waste which can be further given to an NGO for recycling or better purpose.

- Tie up with **Bisleri International regarding their 'Bottles for change program'** also with **'Thereco'** for their waste management.

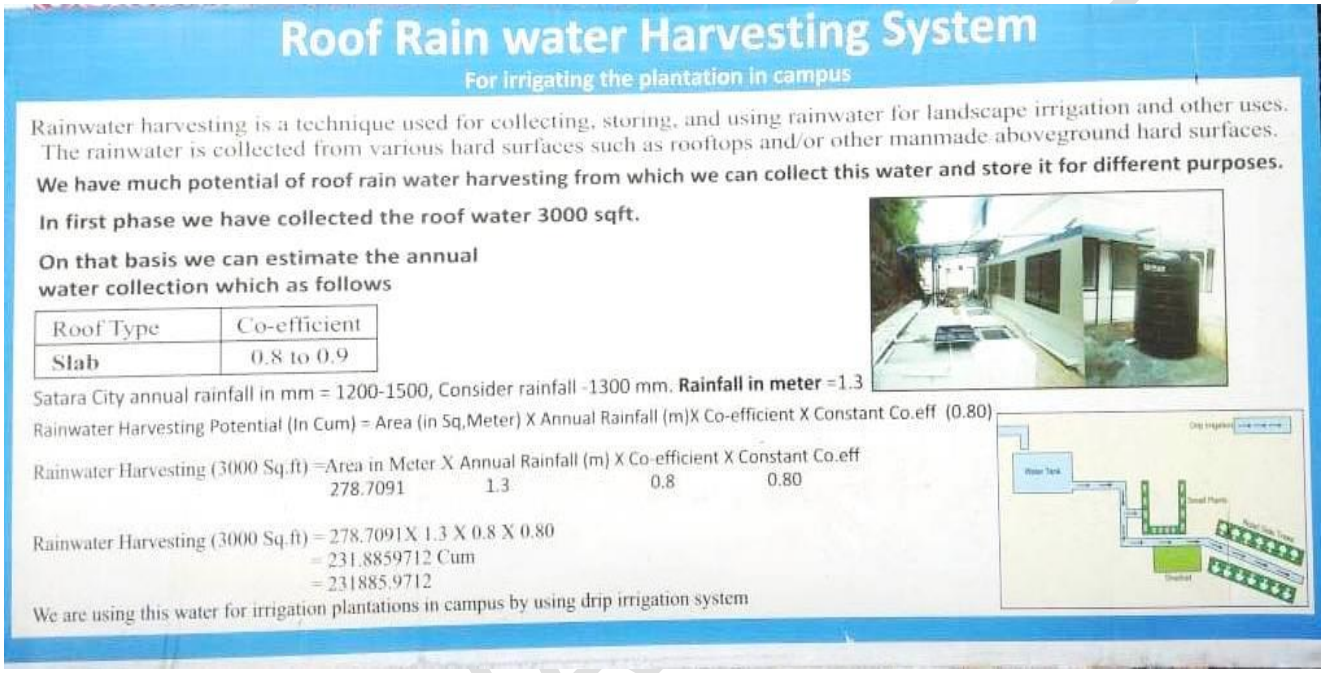
- Invite companies such as **'Thaely'** and **'Recharkha'** to undertake skill development workshops.

- Write to NGOs such as *Adar Poonawala Foundation* for twin litter dustbins and beautification projects.

4.3 Water Audit

- **Rain water bunds –** There should be landscape beautification project undertaken to appropriate channelize the rain water through bunds and similar facilities.

- **Manual about the functioning of the system –** There should be manual such as follows to increase sensitization about the facility and its operations.



Reference suggestions 3: Roof rain water harvesting system

4.4 Health and Hygiene Audit

- **Signboards** – The Institute should have multiple signboards about 'No smoking' and 'Healthy premises' at every nook and corner of the Institute.

- **Compound wall** – The compound wall should have awareness messages about 'No Smoking' and 'No Tobacco'

- **Toilet hygiene** – There should be facilities such as potpourri, camphor tablets in the toilet to avoid smell and health related issues.

5. Compilation

The study is based on the data collected, analysed, rechecked, and confirmed through multiple modes. For the quality study, some standards/ notes have been referred to. These are listed and noted below. However, no direct references have been used anywhere. These are used as a base to analyse and study the data collected.

- Uniform Plumbing Code – India, 2008
- IGBC Green Existing Buildings – Operation & Maintenance (O&M) Rating system, Pilot version, Abridged Reference Guide, April 2013
- IGBC Green Landscape Rating system, March 2013
- BOMA Canada Waste Auditing Guide, Best Environmental Standards, BOMA BEST – Canada
- Used only for understanding Universal design - Universal Accessibility Guidelines for Pedestrian, Non-motorized vehicle and Public Transport Infrastructure – Report guidelines by Samarthyam (National center for Accessible Environments) – an initiative supported by Shakti Sustainable Energy Foundation and www.umassd.edu
- The city of Cheyenne, Streetscape/ Urban Design elements - Wyoming Planning Association, Gillette, Wyoming, United States