SHETH SHREE BHURALAL CHHAGANLAL SHAH ARTS COLLEGE, VADALI

Green Audit Report

2020-2021

WCB Research Lab, HNGU,
Patan (384265)

EXECUTIVE SUMMARY

A nation's growth starts from its educational institutions, where the ecology is thought as a prime factor of development associated with environment. A clean and healthy environment aids effective learning and provides a conducive learning environment. Educational institutions now a day are becoming more sensitive to environmental factors and more concepts are being introduced to make them eco-friendly. To preserve the environment within the campus, various viewpoints are applied by the several educational institutes to solve their environmental problems such as promotion of the energy savings, recycle of waste, water reduction, water harvesting etc. The activities pursued by colleges can also create a variety of adverse environmental impacts. Environmental auditing is a process whereby an organization's environmental performance is tested against its environmental policies and objectives. Green audit is defined as an official examination of the effects a college has on the environment. As a part of such practice, internal environmental audit (Green Audit) is conducted to evaluate the actual scenario at the campus.

Green audit can be a useful tool for a college to determine how and where they are using the most energy or water or resources; the college can then consider how to implement changes and make savings. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. Green auditing and the implementation of mitigation measures is a win-win situation for all the college, the learners and the planet. It can also create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of green impact on campus. Green auditing promotes financial savings through reduction of resource use. It gives an opportunity for the development of ownership, personal and social responsibility for the students and teachers. If

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

In Sheth Shree Bhuralal Chaganlal Shah Arts College, Vadali campus the audit process involved initial interviews with management to clarify policies, activities, records and the co-operation of staff and students in the implementation of mitigation measures. This was followed by collection of data through the questionnaire, review of records, observation of practices and observable outcomes. In addition, the approach ensured that the management and staff are active participants in the green auditing process in the college.

The baseline data prepared for the Sheth Shree Bhuralal Chaganlal Shah Arts College, Vadali will be a useful tool for campus greening, resource management, planning of future projects, and a document for implementation of sustainable development of the college. Existing data will allow the college to compare its programmes and operations with those of peer institutions, identify areas in need of improvement, and prioritize the implementation of future projects. We expect that the management will be committed to implement the green audit recommendations. We are happy to submit this green audit report to the Sheth Shree Bhuralal Chaganlal Shah Arts College, Vadali authorities.

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CHAPTER 1
INTRODUCTION

VISION AND MISSION

- To provide higher–education to the youth of rural, interior and surrounding areas.
- To develop overall balanced and healthy personality of students to contribute National development
- To encourage women students for higher Education.
- To enhance and to improve the quality and the standard of education.
- To encourage maximum students for higher education
- To make overall development of students through educational and co-curricular activities.
- To set up programmes to develop Social and National awareness.
- Continuous monitoring to improve the quality and the standard of education.

OBJECTIVES

To provide higher education to the youth of the rural and surrounding areas inculcating values and to develop overall personality.

CAMPUS & COLLEGE BUILDING AREA

Table 1. Campus and college building area of Sheth Shree Bhuralal Chaganlal Shah Arts College, Vadali

Campus area	26204.00 sq.mt
Built up area	6088.00 sq.mt

NAAC ACCREDITATION

Table 2. NAAC Accreditation of Sheth Shree Bhuralal Chaganlal Shah Arts College, Vadali

NAAC accreditation Phase I	C Grade with 1.89 CGPA, 2008

Sheth Shree Bhuralal Chaganlal Shah Arts College, Vadali is affiliated to the Hemchandracharya North Gujarat University, Patan it follows the curriculum designed by university. The institution is situated in rural and remote area, district Sabarkantha. Most of the population of Vadali and surrounding areas come under educationally, socially or economically backward. The educationalist and intellectuals of the area decided to establish a higher educational institute in Vadali.

The college operates at UG level keeping in mind goals and objectives that is to make the students employable through holistic education and skill development. With the necessary facilities such as good governance, best education and infrastructure along with young and energetic staff, the number of students increases every year. The entire staff vigorously endeavors to inculcate basic virtues like sincerity, discipline, devotion, truthfulness, determination, and patriotic feelings among the learners. The college has almost 50% of women students and during academic year of 2021, total 1035 students are studying in BA which is graphically presented in below diagram.

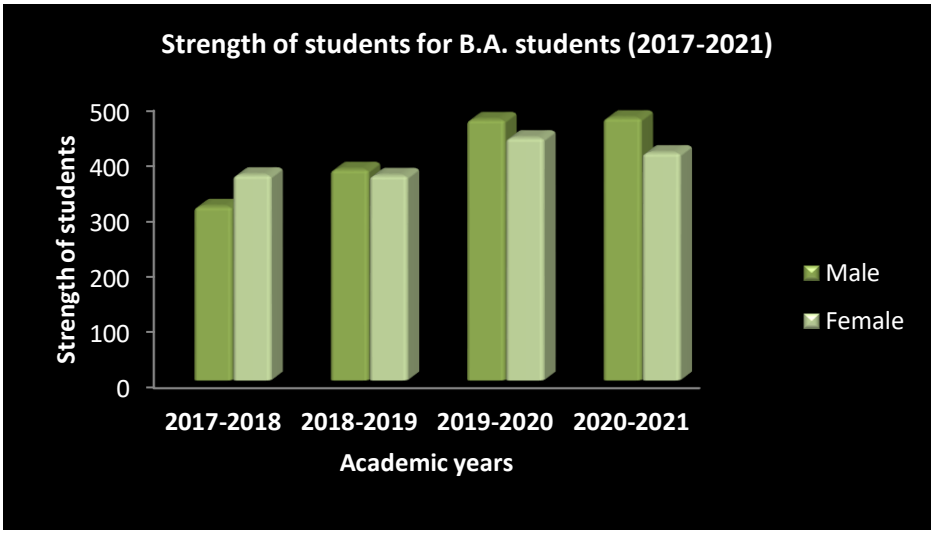

Figure 1. Strength of students vs. academic year for B.A. students

TEACHING LEARNING AND EVALUATION

Majority of the students come from rural back-ground. The teachers keep in mind their socio-economic level and teach accordingly. The year 2020-21 was a year of covid-19 Pandemic. Due to Covid situation, classroom lectures were not possible. Use of ICT and smartphone to teach students Online through various platforms like Microsoft Teams, Google Meet, Teachers' Educational Videos on YouTube. Out of 12 teachers 08 teachers are Doctorates and 04 are Ph.D. supervisors. Classrooms are well equipped, 4 podiums and 3 HOP and visualize are available in the college. Facility for the teaching and learning process in the staffroom includes internet facility, LCD Projector, laptop, CDs. Students are encouraged to attend SANDHAN, a live teaching programme of the state government.

RESEARCH, CONSULTANCY AND EXTENSION

The institution is promoting research and consultancy throughout the year. The college has local research committee comprising of 6 members from various subjects under the coordinators. The college has necessary research related books and journals. 1 book has been published with ISBN number by the institute during the academic year of 2020-2021. Along with the principal, 4 faculties are recognized as Ph.D. guides. Ramp facility and priority in book issue is provided to physically challenged students. Besides, most of the faculty members have been published their research books.

NUMBER OF PAPERS PUBLISHED IN THE YEAR 2020-2021

Table 3. Number of papers published during the academic year of 2020-2021

Paper	Author	Dept.	Journal	ISSN number
Oradi(short story)	Dr. Prabhudas & R. Patel	Gujarati	Parab	0250 -9747

BOOKS PUBLISHED DURING THE YEAR 2020-2021

Table 4. Number of books published during the academic year of 2020-2021

Teacher	Book/chapter	ISBN/ISSN number	Publisher
Dr. Prabhudas & R. Patel	Shabd vimarsh	978-81-942321-3-1	Abhilasha

GRANTS RECEIVED FOR RESEARCH PROJECT IN 2020-2021

Table 5. Number of grants received for research projects during 2020-2021

Project	Principal Investigator	Dept.	Year of Award	Amount Sanctioned	Agency
A study of social visio and healthy … from Idar region	Dr. N. R. Patel	Gujarati	1/11/2021	107,500/-	UGC
Kumar sambhavasya shri vijaygan …. Sahityalochna Ch	Dr. M. D. Parmar	Sanskrit	1/22/2021	72,500/-	UGC

NUMBER OF AWARDS AND RECOGNITIONS RECEIVED FOR EXTENSION ACTIVITIES DURING THE YEAR 2020-2021

Table 6. Number of awards and recognitions received during 2020-2021

No.	Name of the Award/ recognition	Award received faculties or students	Name of the Awarding government	Year of award
1	CCC+	Pro. R. R. Joshi, Pro. Dr. D. A. Mehta, Pro. M. C. Rahevar	B.A.O.U, Ahmedabad	11/2/2020 11/2/2020 12/31/2020
2	GSHEB	Pro. D. A. Patel	GSHS Education Board, Gandhinagar	Sep-20
3	Hindi Vinit Exam	Pro. Dr. D. A. Mehta	Gujarat Vidhyapith	10/17/2020
4	Online - Ph.D Convocation	Pro. Dr. D. A. Mehta	M.G.S.U, Bikaner	12/26/2020
5	Sports	Vadera Rahul R. (kho-kho) Ninama Manisha H.(kho-kho) Asari Vikeshjumar	Mamlatdar kacheri, Vadali	1/26/2021
6	Exercise NCC Yogdan in Covid-19	Khant Rajendrakumar K., Bhambhi Jaydipbhai P., Thakarda Maheshkumar J., Sagar Sunilkumar V., Sagar Rajubhai B., Chauhan Surendrasinh D.	NCC Directorate Gujarat, Dadranagar Haveli, Daman & Diu & Civil Administration	11/11/2020

STUDENTS SUPPORT AND PROGRESSION

- 3 students qualifying in state level examination during the year of 2020-2021.
- Total 104 students enrolled into higher education. Among this, 99 students enrolled into M.A. at Arts College, Vadali; 04 students enrolled into M.A. at other educational institution and o1 student enrolled into MSW at Gujarat Vidyapith, Ahmedabad.
- 3 students achieved awards for outstanding performance in sports at taluka level during the year of 2020-2021.
- College has Career Counseling Cell, Grievance Redressal cell, NSS Committee, NCC

committee, IQAC committee, Saptadhara committee; under which there are various seven committees were formed such as Knowledge committee, Social service committee, Music-dance committee, Yoga sports committee, Arts-skill committee, Drama committee, Creative expression committee.

NUMBER OF DAY CELEBRATIONS IN THE 2020-2021

Table 7. Day celebrations in 2020-2021

No.	Events	Beneficiary
5	Covid -19 awareness painting	To create Covid -19 awareness
6	Save environment painting	To Environment awareness
7	'Atma-Nirbhar Bhart' planning	To awareness
8	Tree Plantation at home and village	To create Environment awareness
9	Relay Run under fit India movement	To health awareness
10	Online yoga day celebrated	To health awareness
11	Online voter list correction programme	For social media awareness
12	Birth Anniversary of Subhash Chandra Bose, Dr. Babasaheb Ambedkar, Dr. Sarvapalli Radhakrishnan (teachers' day), Swami Vivekananda (youth day)	To encourage students from life and work these great personalities
13	Nation voter day was celebrated at district level	For social media awareness
14	Volunteers served in 'Pules Polio' vaccination	To make society Polio free
15	72nd Republic Day	Celebrated with great gratification
16	Gandhi Jayanti, Vivekananda Jayanti, Sardar Patel Jayanti, Uma Shankar Jayanti, Panna Lal Jayanti	To inculcate patriotism, struggle for truth, spiritual value, bravery, and literary sense, culture and heritage of country to students
17	Kargil day	To commemorates victory and tribute to martyrs
18	Voter's day	Students of 18 years and above fill the form number 6 and apply for voter card.

COLLABORATIONS FOR FACULTY EXCHANGE, STUDENT EXCHANGE, INTERNSHIP, ETC. DURING 2020-2021.

Table 8. Collaborations for faculty exchange, student exchange, etc. during 2020-2021

Activity	Collaborating agency with contact details	Name of participant	Duration	Nature of activity
Online teaching	C.C.Mahila Arts College Visnagar	Dr.J.G.Chaudhari, DR. Divya Patel, PRO.F.J.G. Metiya	1to7/7/2020	Online Teaching
CCERTY NCC exam	34th B N, Himmatngar	Dr. Divya Patel	21&27/6/2021	Exam

NUMBER OF FUNCTIONAL MOUS WITH INSTITUTIONS, INDUSTRIES, ETC. DURING THE YEAR 2020-2021

Table 9. Number of functional MOUs with institutions, industries, etc. during 2020-2021

Organization with which MoU is signed	Duration	Activities under each MOU
All Gujarat Womens Organization, 'Shaktimanch', Ahmedabad -	1/7/2020 to 30/6/2025	Beauty care, chocolate making & cake making
HI-TECH Computer, Khedbhrahma	25/6/2020	CCC PRIMARY TRAINING

SCHOLARSHIPS AND CAPABILITY ENHANCEMENT SCHEME

Table 10. Scholarships and capability enhancement scheme achieved during 2020-2021

Name of the capabilityenhancement scheme	Amount in Rupees/ Agencies involved
Vadali Satyavish Valand Samaj	11,000/-

GOVERNANCE, LEADERSHIP AND MANAGEMENT

- The Management is always co-operative with overall administration of the college which is implemented through the principal and faculty members.
- The management provides excellent infrastructural facilities to faculty and students to progress and development of the college.
- The president including management committee calls the meeting from time to time and discusses the feedback from the students and stakeholders.
- The management sponsors the faculty to participate in national and international gatherings.
- The year 2020-21 is a year of Corona Pandemic. Lock- Down, Work from Home, Work from campus but students are not allowed in the classrooms is the scenario during the year.
- Self-appraisal and academic performance of the staff members is also carried out every year and maintained.
- E-governance was implemented in the areas of student admission and support and another in an area was examination in the year of 2018-2019 and in 2016-2017 respectively.

INNOVATIONS AND BEST PRACTICES

- During Covid – 19 pandemic, SOP guideline is implemented. Students are allowed with mask. Use of sanitizer is compulsory in the campus.
- Arts College Vadali Employees Credit Society' is formed for financial assistance and welfare of the employees.
- 15 Employees are Shareholder of the credit society. Employees can take loan up to Rs. 10 lakhs. Employees can deposit amount and can get interest on their deposit. Credit society has President, Secretary and Treasurer from the shareholder employees. The credit society pays dividend and bonus per year to the shareholder employees.
- Women cell is formed for Girl students of college, in which two women teachers of college are included. One Girl Student representative is also a member of this cell. This cell provides counseling to girls about girls' physical problems, harassment and other issues.
- Students Served as Corona Warriors to serve society during Covid-19 Pandemic through students and volunteers.
- NCC Girl cadets for Mask making to serve people and protect form infection of Covid- 19. The girl –cadets worked for one week and prepared 1500 Masks. Masks were donated to The Collector, Sabarkantha district. Some masks were distributed to "Divyang" (Physically Challenged) persons also.
- Three NSS volunteers served with local Health Department, Vadali Taluka in Vaccination programme. On the request of local Health Department, three NSS volunteers readily joined and served.
- Six NCC boy cadets voluntarily and with the consent of their parents joined and served with Police Department. They followed the instructions of the Police office and strictly worked accordingly. These way NCC boy cadets worked as Corona Warriors.

CAMPUS INFRASTRUCTURE

ADMINISTRATIVE ROOM

The administrative room is well- equipped with 3 computers, 2 printers, internet connection, and a photo – copy machine.

AUDITORIUM

An auditorium is also available in the college to enhance the quality of education.

CLASS ROOM AND STAFFROOM

College has 01 staff room for the faculty members and 08 well equipped classrooms to enhance the students' skill as systematically. Two classrooms are equipped with LCD projectors.

CULTURAL HALL OR SEMINAR HALL

The college has a Cultural Hall/ Seminar Hall with 260 square meters. It was built in 2017 year. It has a stage, a mike, a podium, sound system with10 speakers, a Casio, 2 microphone, 3 drum, a pair of Tabla to practice and perform cultural activities.

DELL COMPUTER LAB (LANGUAGE LAB)

The institution has one computer lab with 25 sets of computers along with antivirus system which facilitates the students to fine tune their communication skills.

SPORTS ROOM

Open area of 10171 square meter in which Various sports programme such as Kabaddi, Kho-Kho, Volley Ball, Hand ball, 200 meter track etc. outdoor sports activities are made available for students. Indoor games facility for Chess, Carrom and Yoga also available for students.

NSS ROOM

The sole aim of the NSS is to provide hands on experience to young students in delivering community service.

NCC ROOM

The aim of the NCC room is to developing character, comradeship, discipline, a secular outlook, the spirit of adventure and ideals of selfless service amongst young students.

NAAC ROOM

A separate NAAC room is also available in the college. This room facilitates with computer sets and necessary furniture like tables, chairs, and iron vaults.

GIRLS ROOM

A spacious room is available in the college which comprises of a cot to rest in case of an emergency and other necessary requirements for the girls.

PRINCIPAL ROOM

There is a principal room to maintain of permanent records of students and has internet connections (bandwith 30-50 MBPS) with Wi-Fi Facilities.

GARDEN

The college has ample garden area at the entrance of the college which includes around 73 plants of different variety. Moreover, college building area comprises garden at the front side, middle side and at the back side. For the protection the college has built a wall. Garden also comprises some medical and important plants with their red conservation aspect. College garden is maintained by Shankarbhai M. Dodiyar.

LIBRARY

The college library is fully computerized with INFLIBNET facility and has a collection of 3002 text books and a subscription of about 6000 E-journals (table 7). Internet browsing is also available. The library is semi-automated through software SOUL 2.0, OPAC system for book search has been devised and regularly updated.

Table 11: Library services provides to students during 2020-2021

Library Service	Existing	Newly Added	Total
Text Books	2529	298	2827
ReferenceBooks	9666	26	9692
Journals	Nil	26	26
CD &Video	75	Nil	75
E- Journals	6000	Nil	6000

TOTAL CAMPUS AREA & COLLEGE BUILDING SPREAD AREA

The entire campus is spread in total 7 acres from which 3518 m^2 areas is used for buildings and infrastructure.

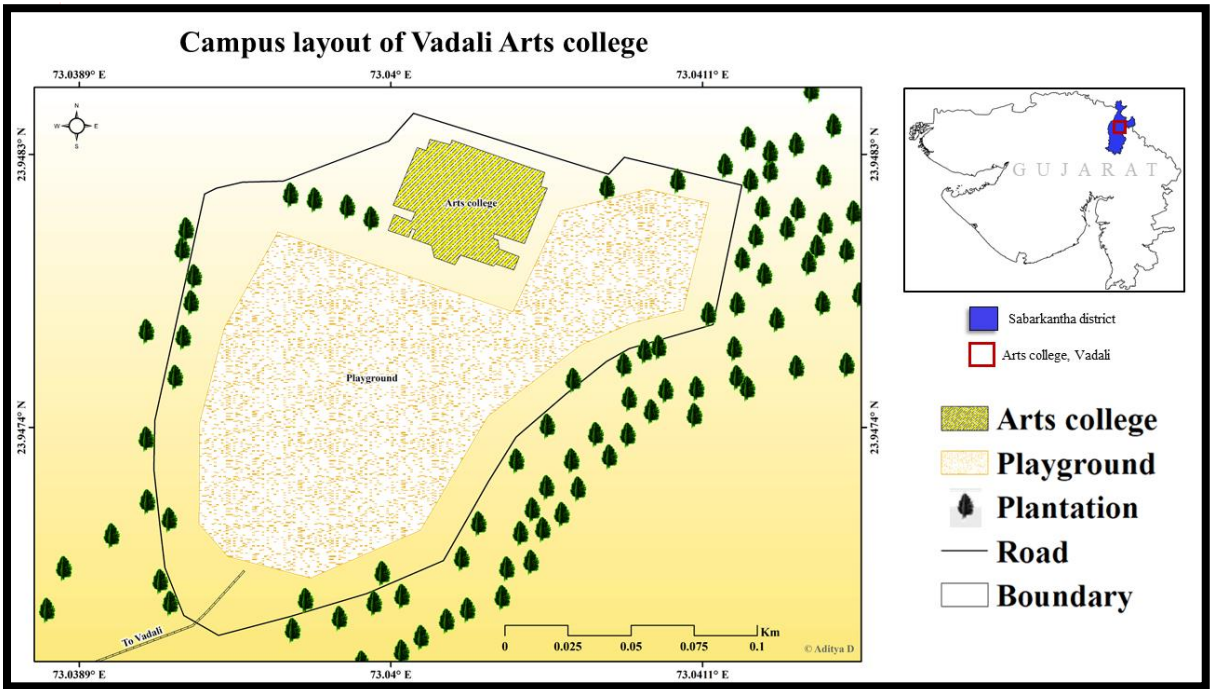

Figure 2. Campus layout of Sheth Shree Bhuralal Chaganlal Shah Arts College, Vadali

CHAPTER 2
PRE AUDIT STAGE

SCOPE AND GOALS OF GREEN AUDITING

A clean and healthy environment aids in effective learning and provides a conductive learning environment. There are various efforts around the world to address environmental education issues. Green Audit is the most efficient and ecological way to manage environmental problems. Green audit means assessing environmental performance. It is a systematic, documented, periodic, and objective review by regulated entities of facility operations and practices related to meeting environmental requirements. It is otherwise the systematic examination of the interactions between any operation and its surroundings. This includes all emissions to air; land and water; legal constraints; the effects on the neighboring community; landscape and ecology; the public's perception of the operating company in the local area. Green audit does not stop all compliance with legislation. Nor is it a 'green washing' public relations exercise. Rather it is a total strategic approach to the organization's activities. It is a kind of professional care which is the responsibility of each individual who is the part of economical, financial, social, environmental factor. It is necessary to conduct green audit in college campus because students become aware of the green audit, its advantages to save the planet and they become good citizen of our country. In accordance with the evaluation plan of Vadali Arts College for 2020-21, the Green Audit of the college conducted in March 2021.

A very simple indigenized system has been devised to monitor the environmental performance of Sheth Shree Bhuralal Chaganlal Shah Arts College, Vadali. It comes with a series of questions to be answered on a regular basis. This innovative scheme is user friendly and totally voluntary. The aim of this is tohelp the institution to set environmental examples for the community, and to educate the young learners. Thus Green audit becomes necessary at the college level.

BENEFITS OF GREEN AUDITING

- More efficient resource management
- To provide basis for improved sustainability
- To create a green campus
- To enable waste management through reduction of waste generation, solid and liquid waste andwater recycling
- To create plastic free campus and evolve health consciousness
- Point out the prevailing and forthcoming complications
- Authenticate conformity with the implemented laws
- Enhance the alertness for environmental guidelines and duties

- Impart environmental education through systematic environmental management approach andimproving environmental standards
- Bench marking for environmental protection initiatives
- Financial savings through a reduction in resource use
- Development of ownership, personal and social responsibility for the college and its environment
- Enhancement of college profile
- Developing an environmental ethic and value systems in youngsters
- Green auditing should become a valuable tool in the management and monitoring of environmental and sustainable development programs of the college
- Developing the organization's environmental strategy: Enabling management to develop itsenvironmental strategy for moving towards a greener corporate and performance culture.

TARGET AREAS OF GREEN AUDITING

Green audit forms part of a resource management process. Although they are individual events, the real value of green audits is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or changeover time. Eco-campus concept mainly focuses on the efficient use of energy and water, to minimize waste generation or pollution and also economic efficiency. All these indicators are assessed in process of green auditing of educational institute. Eco-campus focuses on the reduction of contribution to emissions, procures a cost effective and secure supply of energy, encourages and enhances energy use conservation, promotes personal action, reduce the institute's energy and water consumption, reduce wastes to landfill, and integrate environmental considerations into all contracts and services considered to have significant environmental impacts. Target areas included in this green auditing are water, energy, waste, green campus and carbon footprint.

A) AUDITING FOR WATER MANAGEMENT

Water is a natural resource; all living matters depend on water. While freely available in many natural environments, in human settlements potable water is less readily available. We need to use water wisely to ensure that drinkable water is available for all, now and in the future. A small drip from a leaky tap can waste more than 180 liters of water to a day; that is a lot of water to waste - enough to flush the toilet eight times. Aquifer depletion and water contamination are taking place at unprecedented rates. It is therefore essential that any environmentally responsible institution should examine its water use practices. Water auditing is conducted for the evaluation of facilities of raw water intake and determining the facilities for water treatment and reuse. The concerned auditor investigates the relevant method that can be adopted and implemented to balance the demand and supply of water. It is therefore essential that any environmentally responsible institution examine its water use practices.

B) AUDITING FOR ENERGY MANAGEMENT

Energy cannot be seen, but we know it is there because we can see its effects in the forms of heat, light and power. This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliances, and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. Energy auditing deals with the conservation and methods to reduce its consumption related to environmental degradation. It is therefore essential that any environmentally responsible institution examine its energy use practices.

C) AUDITING FOR WASTE MANAGEMENT

Pollution from waste is aesthetically unpleasing and results in large amounts of litter in our communities which can cause health problems. Plastic bags and discarded ropes and strings can be very dangerous to birds and other animals. This indicator addresses waste production and disposal, plastic waste, paper waste, food waste, and recycling. Solid waste can be divided into two categories: general waste and hazardous waste. General wastes include what is usually thrown away in homes and schools such as garbage, paper, tins and glass bottles. Hazardous waste is waste that is likely to be a threat to health or the environment like cleaning chemicals and petrol. Unscientific landfills may contain harmful contaminants that leach into soil and water supplies, and produce greenhouse gases contributing to global climate change.

Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair, and reuse. Thus the minimization of solid waste is essential to a sustainable college. The auditor diagnoses the prevailing waste disposal policies and suggests the best way to combat the problems. It is therefore essential that any environmentally responsible institution examine its waste processing practices.

D) AUDITING FOR GREEN CAMPUS MANAGEMENT

Unfortunately, biodiversity is facing serious threats from habitat loss, pollution, over consumption and invasive species. Species are disappearing at an alarming rate and each loss affects nature's delicate balance and our quality of life. Without this variability in the living world, ecological systems and functions would break down, with detrimental consequences for all forms of life. Newly planted and existing trees decrease the amount of carbon dioxide in the atmosphere. Trees play an important ecological role within the urban environment, as well as support improved public health and provide aesthetic benefits to cities. In one year, a single mature tree will absorb up to 48 pounds ($4.535*10^{-3}$tones) of carbon dioxide from the atmosphere, and release it as oxygen. The amount of oxygen that a singletree produces is enough to provide one day's supply of oxygen for people. So while you are busy studying and working on earning those good grades, all the trees on campus are also working hard to make the air cleaner for us. Trees can impact one mental health as well; studies have shown that trees greatly reduce stress, which a huge deal is considering many students are under some amount of stress.

E) AUDITING FOR CARBON FOOTPRINT

Usage of fossil fuel based vehicles impacts on the environment through the emission of greenhouse gases into the atmosphere. The most common greenhouse gases are carbon dioxide, water vapor, methane, nitrous oxide and ozone. Of all the greenhouse gases, carbon dioxide is the most prominent greenhouse gas, comprising 402 ppm of the Earth's atmosphere. The release of carbon dioxide gas into the Earth's atmosphere through human activities is commonly known as carbon emissions. An important aspect of doing an audit is to be able to measure the impact so that one can determine better ways to manage the impact. In addition to the audits of water, waste, energy and biodiversity aids to determine what our carbon footprint is, based on the amount of carbon emissions created. It is necessary to know how much the organization is contributing towards sustainable development. It is therefore essential that any environmentally responsible institution examine its carbon footprint.

METHODOLOGY OF GREEN AUDITING

The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The criteria, methods and recommendations used in the audit were based on the identified risks. The methodology includes: preparation and filling up of questionnaire, physical inspection of the campus, observation and review of the document, interviewing responsible persons and data analysis, measurements and recommendations. The methodology adopted for this audit was a three step process comprising of:

A) DATA COLLECTION

In preliminary data collection phase, exhaustive data collection was performed using different toolssuch as observation, survey communicating with responsible persons and measurements. Following steps were taken for data collection:

- The team went to each department, centers, library, canteen etc.
- Data about the general information was collected by observation and interview.
- The power consumption of appliances was recorded by taking an average value in some cases.

B) DATA ANALYSIS AND RECOMMENDATION

On the basis of results of data analysis and observations, some steps for reducing power and water consumption were recommended. Proper treatments for waste were also suggested. Use of fossil fuels has to be reduced for the sake of community health. The above target areas particular to the college was evaluated through questionnaire for data collection. Five categories of questionnaires were distributed which was given in survey forms. The formats of the same are given below.

SURVEY FORM FOR GREEN AUDIT

A) AUDITING FOR WATER MANAGEMENT

1. List uses of water in your college.
2. What are the sources of water in your college?
3. How does your college store water?
4. If there is water wastage, specify why.
5. How can the wastage be prevented / stopped?
6. Write down the ways that could reduce the amount of water used in your college.
7. Record water use from the college water meter for six months.
8. No. of water coolers?
9. No. of bath rooms in staff rooms, common, hostels?
10. No. of toilet, urinals?
11. Does your college harvest rain water?
12. How many water fountains are there?
13. How many water fountains are leaky?
14. Is drip irrigation used to water plants outside? YES/NO
15. How often is the garden watered?
16. Is there any water management plan in the college?
17. Are there any water saving techniques followed in your college? What are they?

B) AUDITING FOR ENERGY MANAGEMENT

1. List ways that you use energy in your college. (Electricity, electric stove, kettle, microwave,LPG, firewood, Petrol, diesel and others)
2. Electricity bill amount for the last year
3. How many times LPG cylinders are used/filled in a year?
4. How many LED bulbs are used in your college?
5. How many tube lights are used in your college?
6. How many fans are installed in your college?
7. How many air conditioners are installed in your college?
8. How many computers are there in your college?
9. Energy used by each inverter per month? (kwh)
10. How many generators are there in your college?
11. No of TV in your college?
12. How many R.O. are there in your college?
13. How many coolers are there in your college?
14. How many UPS are there in your college?
15. How many printers are there in your college?
16. How many Xerox machine are there in your college?
17. How many CCTV cameras are there in your college?
18. How many rooms are there in your college?
19. Do you run “switch off” drills at college?

20. Are your computers and other equipment put on power-saving mode?
21. What are the energy conservation methods adapted by your college?
22. Any alternative energy sources/non-conventional energy sources are installed?
23. Calculation of energy for electrical appliances.

C) AUDITING FOR WASTE MANAGEMENT

1. Which of the following are found near your college?
   Municipal dump yard, Garbage heap, Public convenience, Sewer line, stagnant water, Open drainage, Industry, Bus / Railway station, Market / Shopping complex, Residency.
2. Does your college generate any waste?
   E-waste, Hazardous waste (toxic), Solid waste, Dry leaves, Canteen waste, Liquid waste, Glass, Unused equipment, Medical waste if any, Napkins, Others (Specify)
3. Is there any waste treatment system in the college?
4. Whether waste is polluting the ground/surface/air of the college?
5. How is the waste generated in the college managed?
6. Can you achieve zero garbage in your college?
7. What is the approximate quantity of waste generated per day (in kilograms)?
8. What are the facilities available in the college campus?

D) AUDITING FOR GREEN CAMPUS MANAGEMENT

1. Is there any garden in your college?
2. Do students spend time in the garden?
3. List the plants in the garden, with approx. numbers.
4. Is there any vegetable garden in your college?
5. Is there any medicinal garden in your college?
6. Which are the vegetables cultivated in your garden?
7. Who is in charge of gardens in your college?
8. Do you have any composting pit in your college? If yes, what are you doing with thecompost generated?
9. Is there any botanical garden in your campus? If yes give details of campus flora.
10. Give the number and names of the medicinal plants in your college campus.
11. Is there any nature awareness programme conducted in the campus? If yes, mention year.

E) AUDITING FOR CARBON FOOTPRINT

1. Total Number of vehicles used by the students of the college.
2. Number of parent-teacher meetings in a year?
3. Number of generators used per day (hours).
4. Suggest the methods to reduce the quantity of use of fuel used by the students/ teacher-nonteaching staff of the college.
5. Mention the usage of cycles, two wheelers, cars, common transportation and visitors' vehicles per day.

CHAPTER 3
POST AUDIT STAGE

The base of any green audit is that its findings are supported by documents and verifiable information. The audit process seeks, on a sampled basis, to track past actions, activities, events, and procedures to ensure that they are carried out according to systems requirements and in the correct manner. Green audits form a part of a process. Although they are individual events, the real value of green audits is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time. Although green audits are carried out using policies, procedures, documented systems and objectives as a test, there is always an element of subjectivity in an audit. The essence of any green audit is to find out how well the environmental management and environmental equipment are performing. Each of these components is crucial in ensuring that the campus environmental performance meets the goals set in its green policy. The individual functioning and the success of integration will all play a role in the degree of success or failure of the campus environmental performance.

KEY FINDINGS AND OBSERVATIONS

A) WATER

1. Main water uses in the campus: gardening, toilet, cleaning, drinking, washing and office uses.
2. Separate bore is made for water resource in the campus.
3. College store water through 02 water tanks.
4. Water wastage mainly during urinals and toilets.
5. Water wastage can be prevented by wisely flush in toilets.
6. Reduce the usage of water is foremost way to reduce amount of water used in college.

Figure 3. Bore well system in the campus

7. College does not have chemical laboratories.
8. College has no agriculture field.
9. College campus doesn't have hostel.
10. There is no water meter box in the college.
11. Water management plan: bore well (figure:3)
12. Number of water coolers: 01 and approximately 50 L water used per day.
13. Number of bathrooms: 2 but they are not in use.
14. Number of toilets and urinals: 13 and sapproximately 1000 L water used per day.
15. Number of water fountains: none
16. Number of water taps: 20 and approximately 1000 L water used per day.
17. Every 3 or 4 days in a week the garden is watered and approximately 500L water used for garden purpose.

18. Amount of water used per day for garden use.:- 150 Liters
19. No water treatment system in place.
20. Leaky taps; waterless toilets; water fountain: None
21. There are signs reminding people to turn off the water.
22. Waste water reuse in the college: none
23. Drip irrigation system used for watering the plants in garden.
24. Rain water harvesting technique should be adopted which can save more water in the college.
25. Are there any water saving techniques followed in your college? : Used adequately and maintained.
26. Approx. 200 L water use per day in the college which is detailed in below table 18.

Table 12. Overall utilization of water in the college

Sections	Water Use/ Day (L)
Urinals and toilets	100
Garden	50
Water cooler	50
Total	200

B) ENERGY

1. Only use electricity for LED bulb, computer, Xerox machine, printer, camera, and submersible water pump.
2. Electricity amount for the year is Rs. 55070 kwh.
3. Inverter is not available in college.
4. LPG cylinders, A.C. unit, Air cooler, freeze appliances are not available in the college.
5. CFL bulbs installed in the college: None
6. College always follow switch off electrical equipments when not in use.
7. 40 LED bulbs installed and 05 bulbs uses at night for 8 hours.
8. 03 kwh energy is used by each bulb per month.
9. There are total 37 computers are available in the college.
10. Approximately 10 kwh energy is used by each computer per month
11. Computers are on power saving mode? Yes.
12. Computers run on standby mode most of the time for approximately 2 hours.
13. Alternative source of energy like solar energy/ energy efficient stove: not yet applied but all classrooms are well ventilated and timing of college is 8:00 to 1:00 hence the college do not need to switch on the fan-light continuously.
14. No sign board is displayed for saving energy awareness in the college.

15. Solar energy conservation method should be adopted to reduce the energy use in the college campus in future.
16. Calculation of energy for major electrical appliances used in college campus.

Table 13. Calculation of energy for electrical appliances used in college campus during 2020-2021

Name of Appliances	No. of appliances	Power consumption (watt)	Power consumption (KW=W/1000)	Usage/ day (hours)	Average kWh /day	Average kWh /month
Fan	94	60	0.06	05	28.2	846
LED bulb	39	18	0.018	0	3.51	105.3
LED bulb	01	40	0.04	08	0.04	1.2
Tube light	01	20	0.02	05	0.1	3
Computer	37	200	0.2	05	37	1110
Printer	06	40	0.04	05	1	30
Cooler	01	40	0.04	05	0.2	6
Photocopy machine	01	20	0.02	03	0.06	1.8
CCTV camera	35	30	0.03	05	5.25	157.5
R.O. System	01	20	0.02	05	0.02	0.6
UPS	37	25	0.25	05	4.23	126.9
TV	01	20	0.02	03	0.06	1.8
Total	218	770	0.77	45	79.61	2388.3

17. Average energy for major electrical appliances used in college (figure 4)

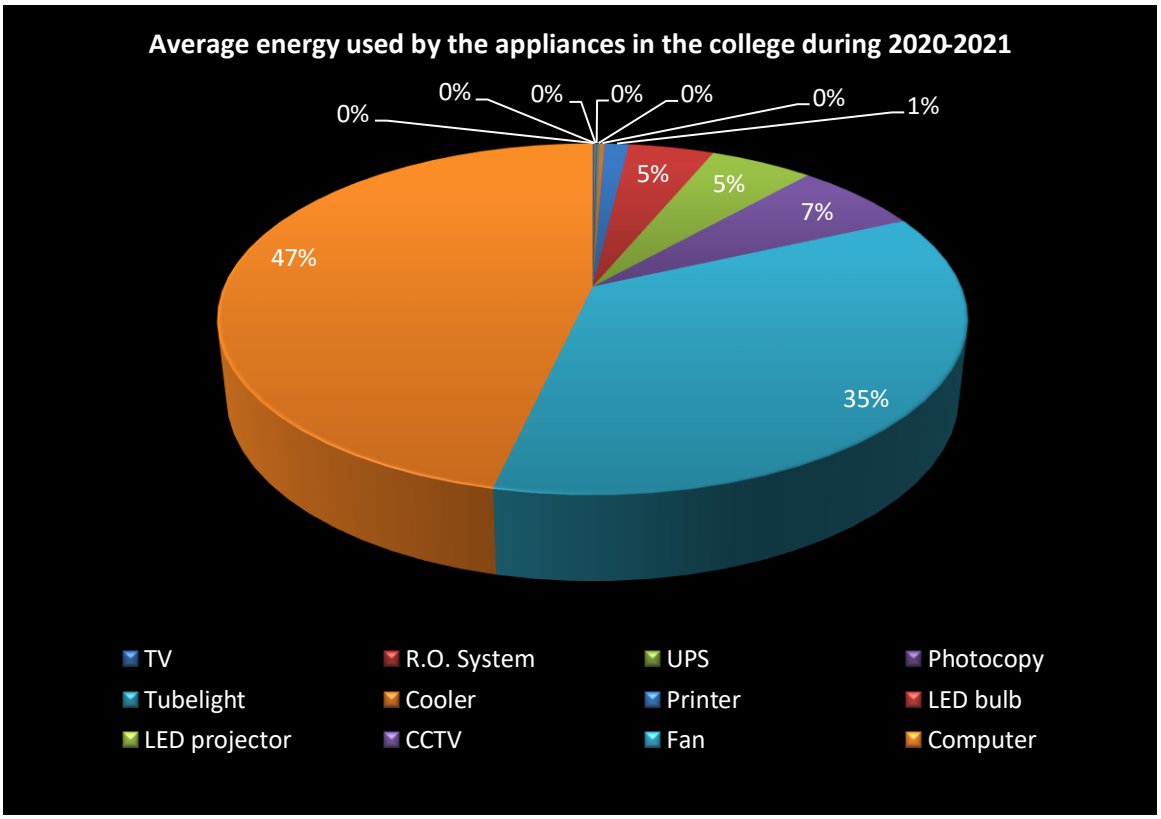

Figure 4. Average energy for major electrical appliances used in college of Sheth Shree Bhuralal Chaganlal Shah Arts College, Vadali during 2020-2021.

C) WASTE

1. Following are near from the college area: public convenience and forest.
2. College generates solid wastes, dry leaves and some liquid wastes.
3. Composting system is available to reduce garden waste.
4. College spreads the message of recycling to others in the community through celebration of cleanliness drive and hoardings activities done by NSS and NCC students the college.
5. Reduce, Recycle, Reuse and refuse are some ways to achieve zero garbage in the college and the college is trying to accomplish to fulfill these things.
6. The risk of dumping garden waste is that it may grow propagules as well as increase fire fuel loads, disrupt visual amenity, accrue economic costs associated with the removal of waste as well as costs associated with the mitigation of associated impacts such as weed control, forest fire.

Figure 5. Generated wastes collected in dustbins. Solid wastes in black and liquid wastes in yellow dustbin

7. Different wastes such as dry wastes and liquid wastes collected in different dustbins. So, college achieves zero garbage. Figure 5 shows photograph of solid and liquid waste dustbins.
8. Electronic waste is generated in negligible amount.
9. Every year rallies, drawing competition, are organized on cleanliness theme. N.C.C. and N.S.S. units keep campus clean with cleanliness drive.
10. Waste-recycling System such as dry wastes dumps at the back side of the garden to produce manure and then apply it into the garden.
11. Other wastes such as hazardous chemicals and radioactive waste does not generate as this institution conducting Arts branch only. Even, surrounding areas are green fields, and no factory or industrial zone nearby.
12. Total strength in the college during 2020-2021.

Table 14. Total strength in the college during 2020-2021

Students	No. of students	No. of teachers	No. non teaching staff
Gents	545	09	05
Ladies	457	02	01
Total	1002	11	06

13. Following facilities are available in the college campus

Table 15. Facilities available in the college campus

Facility	Number of facility	Facility	Number of facility
Garden area	01	Canteen	--
Play ground area	01	Parking area	01
Kitchen	--	Class rooms	08
Toilets	13	Office rooms	02
Garbage dump	--	Library	01
Language lab	01	Auditorium	01
Computer lab	01	Boys and Girls hostel	--

14. Approximate office waste generated per day (in kilograms):

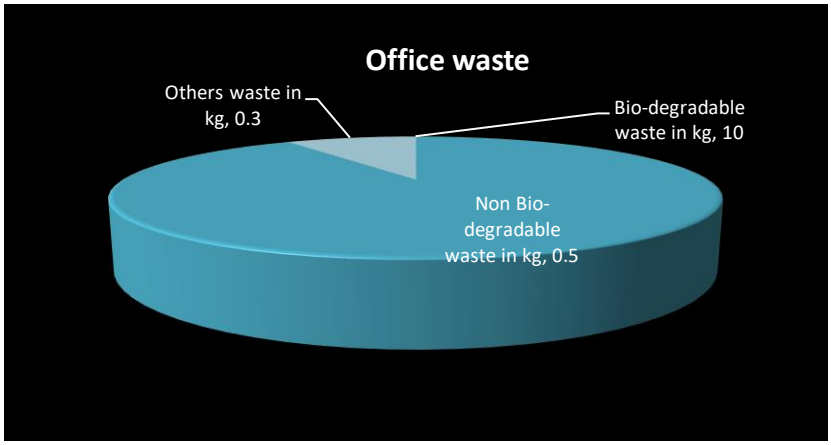

Figure 6. Approximate office waste generated per day during 2020-2021

13. Different types of waste generated in the college and their disposal.

Table 16. Different types of waste collected in and their disposal method

Types of waste	Particulars	Disposal method
E-Wastes	Computers, electrical and electronicparts	Keep separate in store room
Plastic wastes	Plastic wastes as Refill, Plastic water bottles, etc.	Negligible amount generate
Solid wastes	Damaged furniture, paper waste, paper plates, etc.	Solid wastes' dustbin and sent to Nagarpalica
Liquid wastes	Ddomestic wastewater	Liquid wastes' dustbin and sent to Nagarpalica
Waste water	Washing, urinals, bathrooms	Drainage
Biomedical waste	Waste sharps, discarded medicines, etc.	None

D) GREEN CAMPUS

1. The institution is surrounded by green fields. The institution tries to maintain eco-friendly atmosphere. Tree canopy is available approximately within 0.5 acre area of the campus. Campus is certified as greenest campus in the Vadali town by Vadali Nagar Seva Sadan (annexure 1).
2. Campus landscaping with many different plants and total number of plants identified are 40
3. College garden is maintained by Shankarbhai M. Dodiyar.
4. Campus harbors many botanical tree species and at the back side of college building there's separated botanical garden also available in the college.
5. College has drip irrigation system to nourish the plants of garden.
6. There are total 05 small gardens full-fledged in approximately 120.00sq.mt area in the college building.
7. Students spend time in the garden.
8. Proper care is taken to maintain trees, plants and garden.
9. Plantation activity done by college campus with the help of Forest Department of Vadali which is enclosed in annexure 2
10. The College has a vermin-composting unit. Dry leaves waste from the garden are collected and are placed in the vermin composting unit.
11. Composting pit is placed in the garden of the college and generated compost then used as manure in the garden of campus.
12. 03 threatened species are identified in the college campus.
13. College actively organized nature awareness programmes which are listed below.

- **CLEANLINESS DRIVE AND SWACHHATA ABHIYAN (05/08/2020)**
  Under the Swachhata Bharat Abhiyan, college organized cleanliness programme and developed a committee which plays a significant role in the campus premises, to make campus neat, clean and dust free. The college also encourages the students to use dustbin put on the corridor as a part of good habit.

- **CELEBRATION OF GANDHI JAYANTI (02/10/2020)**
  Gandhi considered non-violence to be a philosophy, a principle and an experience basedon which it is possible to build a better society. College organized Gandhi Vichar Yatra on.

- **WORLD YOGA DAY** AS **YOGA AND HEALTH AWARENESS (21/06/2020)**
  College celebrated World Yoga Day with the purpose to cultivate discernment, awareness, self-regulation and higher consciousness in the individual. 'Gujarat State Yoga Board' Gujarat and Our College's Sports Department organized 'Yoga Trainer Training Camp' from 14-02-2020 to 17-03-2020. This training camp was of 80 hours. Various light exercise, various 'Asanas', 'Pranayama', 'Suryanamaskra', chanting of 'Om' were the part of this training.

- **NO TO USE OF PLASTICS**

  Plastic hatavo activity organized by college to establishes environment-friendly plastic waste disposal solutions. In the process it seeks to ban the use of plastic bags and plastic products, and reduce plastic littering across the campus.

- **PLANTATION OF TREES BY STUDENTS**

  Tree plantation creates awareness of green earth and eco-friendly culture. Tree plantation is made in campus and surrounding villages in collaboration with the forest department, Vadali. Green cover is significant because it is linked to our basic need for good food to eat and clean air to breathe. Aside from these necessities, they preserve biodiversity, conserve water, preserve soil, and control climate, among other things.

- **ATMA-NIRBHAR BHART**

  Covid -19 awareness painting saves environment painting from the home made by students under ‘Atma-Nirbhar Bhart’ programme.

- **GREEN ENVIRONMENT**

  Every year various cultural programmes arranged such as on the theme of Green Environment celebrated to subtly sensitizing students to the environment through hands-on and thought provoking activities.

IMPORTANT TREES FOUND IN THE COLLEGE CAMPUS WITH THEIR RED CONSERVATION STATUS

Table 17. Important trees found in the college campus with their red conservation status

Sr. No.	Status of trees	Available trees in the college campus
1	Least concern species	*Tamarindus indica*
2		*Eucalyptus globulus*
3		*Azadirachta indica*
4		*Millettia pinnata*
5		*Alangium salvifolium*
6		*Alstonia scholaris*
7		*Kigelia pinnata*
8		*Gmelina arborea*
9	Critically endangered species	*Hyophorbe lagenicaulis*
10	Not extinct	*Leucaena leucocephala*
11		*Mimusops elengi*
12	Vulnerable species	*Wodyetia bifurcata*
13		*Terminalia arjuna*
14	Threatened species	*Butea monosperma*
15		*Pithecellobium dulce*
16		*Ficus racemosa*

BOTANICAL SAPLING AVAILABLE IN THE COLLEGE

Table 18. Botanical sapling available in the college

Sr. No.	Common name	Scientific name
1	Tulsi	*Ocimum tenuiflorum*
2	Damro	*Ocimum basilicum*
3	Ardusi	*Adhatoda vasica*
4	Menthol Tulsi	*Ocimum tenuiflorum*
5	Karan Pili	*Cascabela thevetia*
6	Champo	*Plumeria alba*
7	Lili	*Lilium candidum*
8	Ticoma	*Tecoma stans*
9	Mitho Limdo	*Murraya koenigii*
10	Coleus	*Coleus scutellarioides*
11	zygotene tobaco	*Nicotiana tabacum*
12	Ratrani	*Cestrum nocturnum*
13	Limbu	*Citrus limon*
14	Allamnda	*Allamanda cathartica*
15	Amla	*Phyllanthus emblica*
16	Jambu	*Syzygium cumini*
17	Sargava	*Moringa oleifera*
18	Bamboo	*Bambusa vulgaris*
19	Bijoru	*Citrus medica*
20	bottlebrush	*Callistemon lanceolatus*
21	Chandan	*Santalum album*

22	Kadam	*Neolamarckia cadamba*
23	White gado	*Tinospora cordifolia*
24	White Champa	*Magnolia champaca*
25	Noni	*Morinda citrifolia*
26	Parna Kutir	*Codiaeum variegatum*
27	Adavi	*Abutilon indicum*

GARDEN SAPLING AVAILABLE IN THE COLLEG

Table 19. Garden sapling available in the college

Sr. No.	Common name	Scientific name
1	Mogaro	*Jasminum sambac*
2	Ixora	*Ixora coccinea*
3	Gulab	*Nelumbo nucifera*
4	Ticoma vel	*Tecoma stans*
5	Cycas main	*Cycas circinalis*
6	Cycas palm	*Cycas revoluta*
7	Garden Lily	*Lilium candidum*
8	Ficus	*Ficus benjamina*
9	Erica palm	*Dypsis lutescens*
10	red lily	*Lilium philadelphicum*
11	Tagar	*Tabernaemontana divaricata*
12	Vasant Pili Limdi	*Canarium ovatum*
13	Lal Bhaji	*Amaranthus dubius*
14	Euphorbia	*Euphorbia trigona*
15	Tiger Palm	*Phoenix paludosa*

16	Jasud	*Hibiscus rosa-sinensis*
17	Barmasi	*Catharanthus roseus*
18	Tred palm	*Cyrtostachys renda*
19	Cycas	*Cycas rumphii*
20	iram Themam	*Chrysanthemums mums*
21	Jotiya	*Centella asiatica*
22	Lon	*Sisymbrium irio*
23	Chharu	*Aegle Corrêa*
24	Morpinchh	*Platycladus orientalis*
25	Ipomoea vel	*Ipomoea quamoclit*
26	Foxtail palm	*Wodyetia bifurcata*

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TOTAL PLANTS FOUND IN THE COLLEGE CAMPUS WITH THEIR RED CONSERVATION STATUS

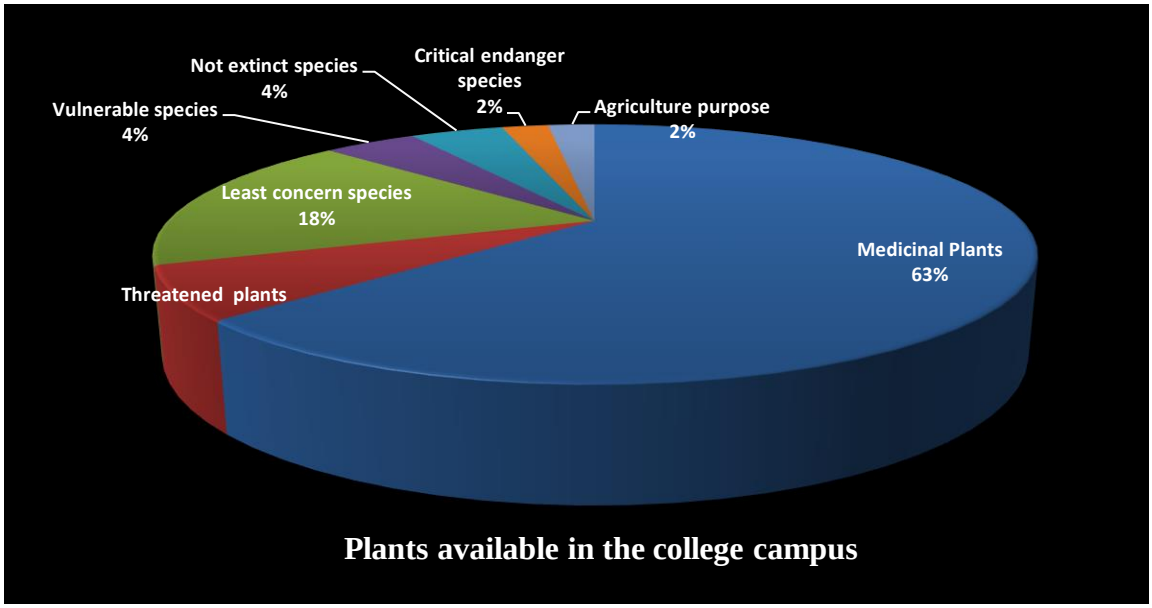

Figure 7. Total plants found in the college campus with their red conservation status.

TALL TREES FOUND IN THE ARTS COLLEGE CAMPUS OF VADALI.

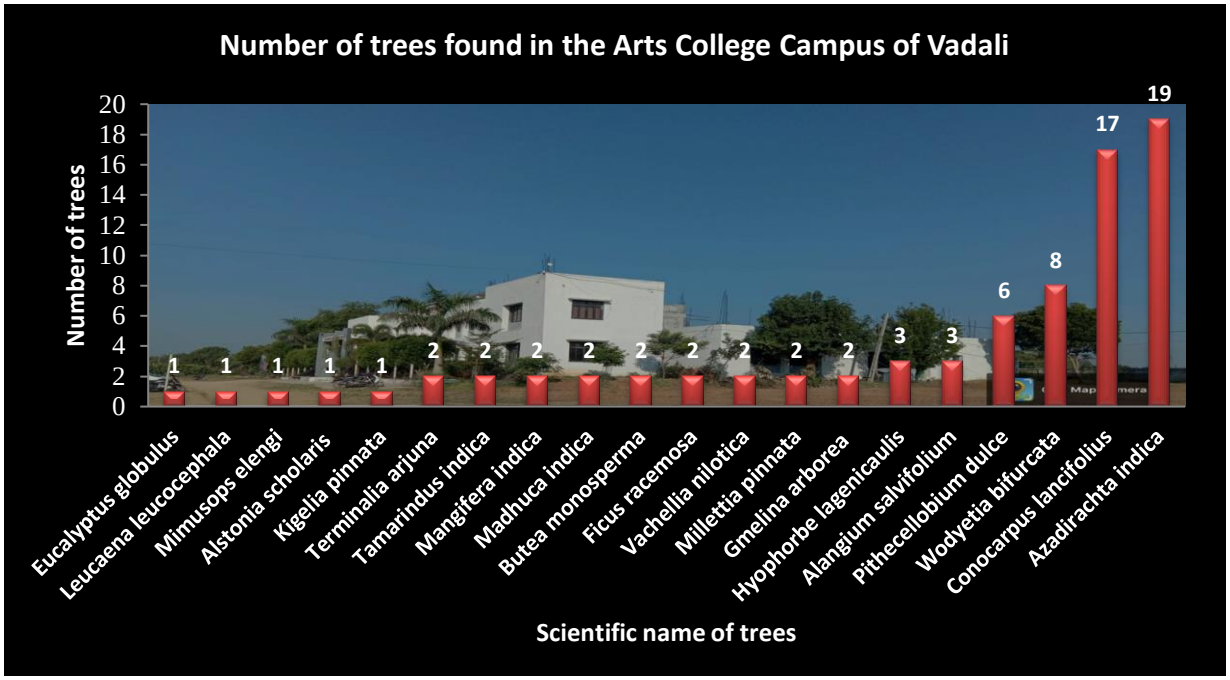

Figure 8. Number of trees found in the Arts College Campus of Vadali.

CARBON FOOTPRINT

According to U.S. EIA (Energy Information Administration), greenhouse gases are gases that keep heat in the earth's atmosphere. Although greenhouse gases do occur naturally, majorly human activity contributes a great deal to greenhouse gas emissions. The carbon footprint or the impact on the environment from the college campus measures the greenhouse gases that campus responsible for creating.

CARBON FOOTPRINT ANALYSIS

The institution is situated in remote areas surrounded by Aravalli hills and Polo Forest. The rural students also love trees and forests. The institution takes following steps for the betterment of environment:

1. Environment and Disaster Management subject is included for the students of semester III in the curriculum will help the youth understand how to anticipate, absorb and adapt to such events.
2. The institution is surrounded by green fields. The institution tries to maintain eco- friendly atmosphere.
3. Tree plantation is made in campus and surrounding villages in collaboration with the forest department, Vadali.
4. Separate bore is made for water resource.
5. Restricted entry of automobiles

6. Pedestrian Friendly pathways
7. Parent-teacher meetings done twice in a year
8. Diameter at breast height and approximate age of the trees were measured to estimate the potentiality of carbon sequestration for the campus trees which can be seen in figure 9. Total carbon sequestered by trees of campus was 219.74 t/year in which highest potentiality of carbon sequestration was observed in *Azadirechta indica* (46.16 t/year) and the lowest potentiality of carbon sequestration was observed in *Kigelia pinnata* (22.87 t/year) during the study sample. The above findings suggest that plantation of trees with high carbon storage capacity may one of the options to reduce the atmospheric carbon dioxide as well as maintain the natural heritage of the state.
9. There is a carbon pooling system in the campus which minimizes the atmospheric carbon emission.
10. Total number of vehicles used by the students of the college: 05
11. Total number of vehicles used by the stakeholders of the college : 10
12. Number of cycles used : 05
13. Number of two wheelers used : 15
14. Average distance travelled : 10 km
15. Average quantity of fuel used : ½ Ltr
16. Number of cars used by faculties:07
17. Number of cars used by visitors: 12
18. Approx distance travelled : 20 km
19. Approx quantity of fuel used : 1 Ltr
20. Number of persons using public transportation : 1200
21. 5 fire extinguisher sets to control fire.
22. Any suggestion to reduce the use of fuel :
23. College has initiative for carbon accounting.
24. Adequate transportation facilities in the college.
25. College should encourage the students and faculties to use cycles.

Figure 9. Diameter is estimated to measured carbon sequestration from trees available in the college campus

CARBON FOOT PRINT FOR SHETH SHREE BHURALAL CHAGANLAL SHAH ARTS COLLEGE, VADALI CAMPUS IS CALCULATED AND COMPARE TO COUNTRY AND WORLD LEVEL FOR THE YEAR OF 2020-2021.

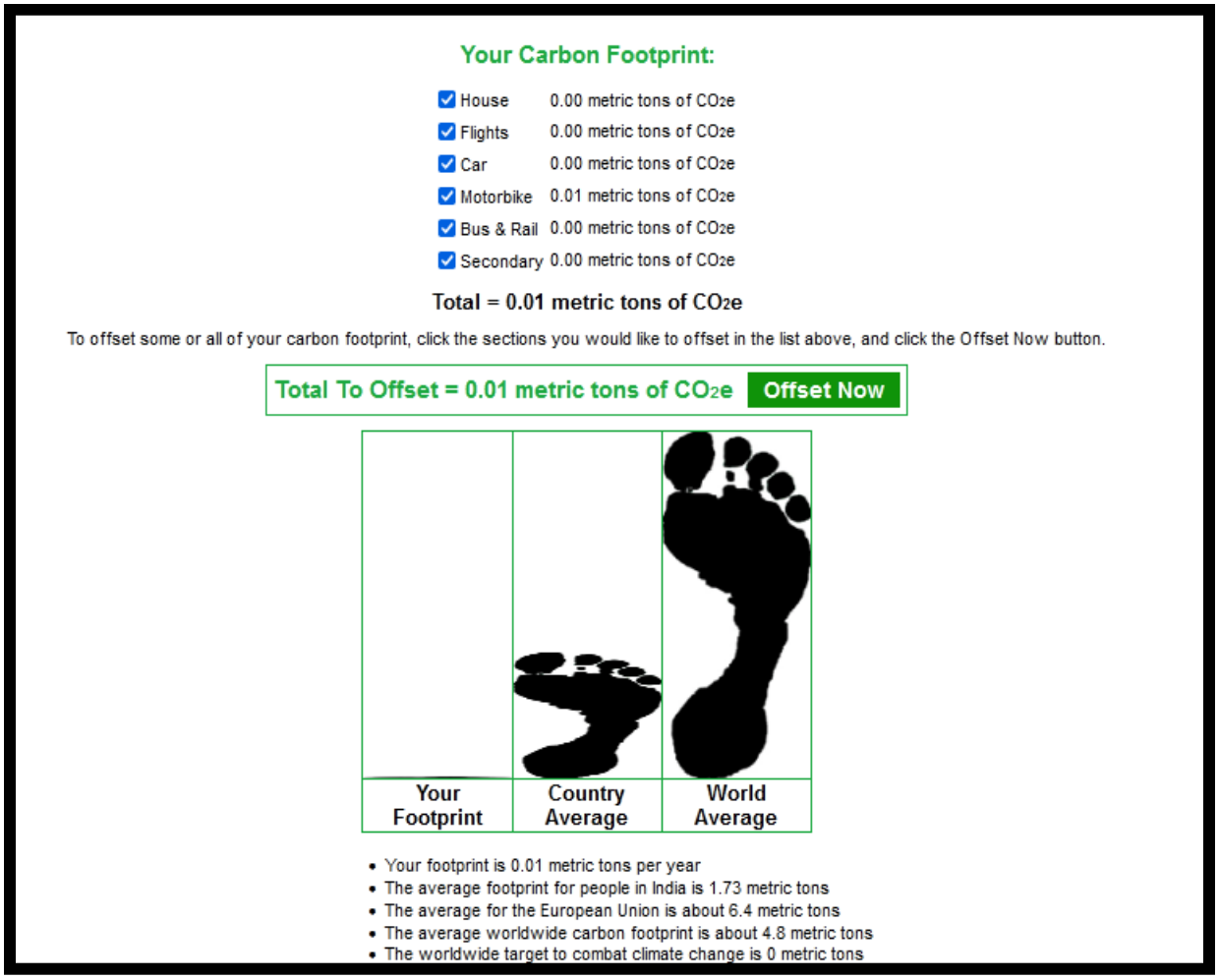

Figure 10. Sheth Shree Bhuralal Chaganlal Shah Arts College, Vadali campus footprint compare to country and world level for the 2020-2021

CHAPTER 4
FINDINGS

PREPARATION OF ACTION PLAN

Policies referring to college management and approaches towards the use of resources need to beconsidered. The college should have a green policy/environmental policy for its sustainable development. The environmental policy formulated by the management of the college should be implemented meticulously. The college should have a policy on awareness training programsand college also should have a procurement policy.

FOLLOW UP ACTION AND PLANS

Green Audits are exercises which generate considerable quantities of valuable management information. The time, effort and cost involved in this exercise are often considerable and in order to be able to justify this expenditure. It is important to ensure that findings and recommendations of the audit are considered at the correct level within the campus and that action plans and implementation programs result from the findings. Audit follow up is part of thewider process of continuous improvement. Without follow-up, audit becomes an isolated event which soon becomes forgotten in the pressures of management priorities and passing of time.

ENVIRONMENTAL EDUCATION

The following environmental education program may be implemented in the college before the next green audit:-

- Training programs in solid waste management, liquid waste management, setting up of medicinal plant nursery, water management, vegetable cultivation, and more tree plantation programmes should be done at regular intervals.
- Increase the number of display boards on environmental awareness such as save water, save electricity, no wastage of food/water, no smoking, switch off light and fan after use, plastic free campus etc.
- Activate and raise the environmental clubs.
- Set up model for rainwater pits, vegetable garden, medicinal plant garden, paddy fields etc. for providing proper training to the students.
- Awareness on carbon consumption.
- The carbon consumption awareness programs on carbon emission at individual as well associal level will help to avoid air and noise pollution in the campus due to vehicles.

CONCLUSION

The green audit assists in the process of testing performance in the environmental arena and is fast becoming an indispensable aid to decision making in a college. The green audit reports assistin the process of attaining an eco friendly approach to the sustainable development of the college. Hope that the results presented in the green auditing report will serve as a guide for educating the college community on the existing environment related practices and resource usage at the college as well as spawn new activities and innovative practices. It has been shown frequently that the practical suggestions, alternatives, and observations that have resulted from audits have added positive value to management of the campus. An outside view, perspective and opinion often help staffs who have been too close to problems or methods to see the value of alternative approaches. A green audit report is a very powerful and valuable communications tool to use when working with various students who need to be convinced that things are running smoothly and systems and procedures are coping with natural changes and modifications that occur.

CURRENT SAVING METHODS ADOPTED IN THE COLLEGE

- Turn off electrical equipments when not in use.
- Maintain appliances and replace old appliances.
- Use computers and electronic equipments in power saving mode.
- Energy saving through the replacement of incandescent bulbs, CFL lamps and tube lights to LED light could be a good option.
- Awareness programs for the students to save energy, save water may also increase sustainability in the utilization of various energy and water sources.

LIST OF ECO FRIENDLY ACTIVITIES GOING ON IN THE CAMPUS

- Planting and caring of trees in and around the campus.
- Timely disposal of wastes from the campus.
- Celebration of important days like Swachhata Abhiyan, Plantation of trees and ban on Plastics, Celebration of Gandhi Jayanti, Yoga and Health Awareness etc. with great importance.
- Management has decided to adopt green protocol.
- Distribution of medicinal plant saplings among students.
- Preparation and distribution of sapling during the monsoon season among the students.

A. CONSOLIDATION OF AUDIT FINDINGS

We hope that students will have developed a greater appreciation and understanding of the impact of their actions on the environment. They have successfully been able to determine the impacts on the environment through the various auditing exercises. Participating in this green auditing procedure they have gained knowledge about the need of sustainability of the college campus. It will create awareness on the use of the Earth's resources in their home, college, local community and beyond.

MAJOR AUDIT OBSERVATIONS

- Gardens inside the college premises are found well maintained.
- Use of notice boards and signs are not adequate to reduce over exploitation of natural resources.
- Programs on green initiatives should increase.
- Rain water harvesting system should adopt in the college.
- Campus is plastic free zone.
- College has some major techniques like, environmental education programs, botanical garden, vermi-composting and wastes segregation available in the campus.

WATER AUDIT

- There is not enough water consumption monitoring system in the college campus.
- The college should manage all excretory waste material in absorption pit which can be further use as a fertilizer in the garden of the college campus.
- Automatic switching system installed to stop overhead tank filling.
- Water inlet and outlet of washrooms should be managed by the college.

ENERGY AUDIT

- The older appliances and non energy efficient equipments are replaced when it with new energyefficient equipments.
- Regular monitoring of equipments and immediate rectification of any problems is done as safety precaution in the campus.

WASTE AUDIT

- Solid waste (garden waste) and liquid waste are managed by the college.
- The college has proper communication with the local body for regular collection of othersolid waste from the campus.
- Implementation of sustainable projects to attain set environmental goals should to be place.
- Waste bins in the class rooms, veranda, canteen and campus are adequate.
- Biogas plant should be established.

GREEN CAMPUS AUDIT

- Regular planting of trees in the campus should be done.
- Display boards should be placed to identify the plants.
- There are adequate fruit trees in the college to attract birds.
- Registry for flora and fauna on the campus is lacking.
- Total 73 plants are available in the garden in which 20 tall trees and 27 botanical saplings and 26 garden saplings are present in the college campus.

B. LIST OF COMMON RECOMMENDATIONS

- Adopt an environmental policy for the college.
- Conduct more seminars and group discussions on environmental education.
- Students and staff can be permitted to solve local environmental problems.
- Renovation of cooking system in the canteen to save gas.
- Establish water, waste and energy management systems.
- Celebrate environment protected days like, Environment day, Ozone day etc.
- To aware and protect the environment the sign board is kept at all classrooms of the college.
- Every year green auditing should conduct to ensure development along with safeguarding the environment

CRITERIA WISE RECOMMENDATIONS

WATER

- Remove damaged taps and install sensitive taps is possible.
- Awareness programs on water conservation should be conducted.
- Install display boards to control over exploitation of water.
- Set up a rain water harvesting system in the college.
- Use of Sprinkler for irrigation in garden.

ENERGY

- Conduct more save energy awareness programs for students and staff.
- More energy efficient fans should be replaced.
- Observe a power saving day every year. Energy efficient electrical equipments especially fans and pump sets can be replaced against old ones.
- Campus should adopt renewable solar energy source by installing Solar panels to cut down on the electricity bills and using the renewable energy efficiently by installing LED bulbs and tubes.

WASTE

- Establish a functional biogas plant.
- The college has a composting pit inside the campus that provides major and micro-nutrients to the plants as well as it can help to improve soil texture and water holding capacity of the soil.
- Avoid paper plates and cups for all functions in the college.

GREEN CAMPUS

- Green campus week should be conducted every year to protect the environment.
- All trees in the campus should be named scientifically.
- Create more space for planting and plant trees as Miyawaki method.
- Grow potted plants at both verandah and class rooms.
- Beautify the college building with indoor plants.
- Encouraging students not just through words, but through action for making the campus greener.
- Conducting competitions among departments for making students, teaching-non teaching staffs more interested in making the campus greener.
- Plantation of such trees which has maximum capacity to store atmospheric carbon with girth diameter of 51–70 cm which are require to give more attention during reforestation activities to retrieve the effect of emitted carbon in the campus.
- Set up Chabutara for birds are also made as a part of Jeevdaya.

CARBON FOOTPRINT

- Increase a system of car pooling among the staff to reduce the number of four wheelerscoming to the college.
- Encourage students and staff member to use cycles.
- Discourage the students using two wheelers for their commutation.
- A model solid waste treatment system can be established in the college as a part of awareness program to the students.
- More trees should be planted in the campus to make a source of sink for the carbon dioxide and for other green house gases.

Audit Team

Dr. Jagruti Jagiwala *PhD*	Principal Scientist
Dr. Nishith Dharaiya *PhD*	Hon. Advisor
Mr. Nirav Pandya *M.Sc.*	Volunteer
Mr. Aditya Dharaiya *B.Sc.*	Volunteer

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Annexure 1.

(ઓ.) : ૦૨૭૭૮-૨૨૨૦૧૬
ચીફ ઓફિસર : ૦૨૭૭૮-૨૨૨૫૧૬
ફેકસ : ૦૨૭૭૮-૨૨૦૨૧૬

નિર્મળ ગુજરાત

VADALI MUNICIPALITY

સ્થાપના : ૧૧-૮-૨૦૦૫

વડાલી નગર સેવા સદન

મુ. પો. તા. વડાલી, જિ. સાબરકાંઠા. પીન : ૩૮૩ ૨૩૫
e-mail : vadalinagarpalika@yahoo.co.in

પત્રકમાંક નં. વ.ન.પા./ ૮૪૮ /વશી/ ૩૫૨ /૨૦૨૧ તા. 15/08/2020

CERTIFICATE

The certificate is given to " Arts College Vadali " for the place with the The greenest campus in Vadali town, congratulations are extended to The institution for green campus

PRESIDENT
VADALI NAGARPALIKA

Annexure 2.

Plantation activity done by college campus with the help of Forest Department of Vadali