

SHRI BABULAL PUNAMCHAND SHAH VIDHYASANKUL SANCHALIT  
SMT. R. M. PRAJAPATI ARTS COLLEGE  
SATLASANA

# Green Audit Report 2018-2019

BY



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## CHAPTER 1

### INTRODUCTION

#### VISION AND MISSION

- To impart higher education to the local youth, especially to those girls who live in surrounding and remote rural or tribal areas
- To prepare youth to the context of social and economical needs by which student can develop overall balanced and healthy personalities to contribute national development.
- To empower the rural youth (especially girls) by providing qualitative education intellectually, socially, morally and to inculcate into them social, economic and national responsibilities.

#### OBJECTIVES

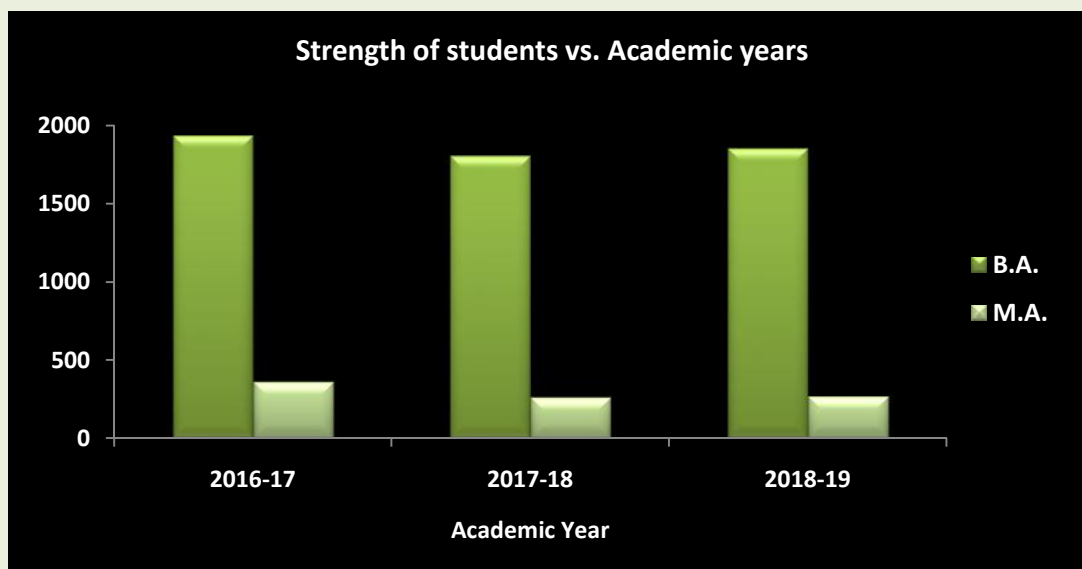
- To understand moral values that guides a professional and to address moral issues in a profession.
- Justification of moral judgment concerning a profession.
- To nurture a set of beliefs, attitudes and habits that engineers are expected to display concerning morality.
- To introduce awareness on human values and professional ethics.
- To inculcate Moral Values and social responsibility.
- To follow the fundamental duties as per constitution of India.

#### ACCREDITATION MILESTONES

- The college had been awarded 2 (F) 12 (B) in 2008
- NAAC accreditation Phase I: B Grade with 2.51 CGPA, 2009
- NAAC accreditation Phase II: B Grade with 2.79 CGPA, 2014
- College with Potential for Excellence (CPE) awarded by the UGC in 2012

Smt. R. M. Prajapati Arts college is located at Satlasana in Mehsana district of Gujarat state. The college was established in 1996 and in the year of 2003, a new building of college was built up with the noble donation from Shri Babulal Punamchand Shah as a consequence, the name of the trust was changed and now it is recognized as *Shri Babulal Punamchand Shah Vidhya Shankul*. The college has received a status of 'grant-in aid college' from the Government of Gujarat and affiliated with Hemchandracharya North Gujarat University, Patan. At the initial stage (1996-97) the total strength of college was just 65 students at Under Graduate level (BA). However, due to good governance, best education, infrastructure with all the necessary facilities along with young and

energetic staff, the number of students are increasing in every year. In the academic year 2018- 19, there were 1842 students studying BA and 267 students in MA which is graphically presented in below diagram.



## TEACHING LEARNING AND EVALUATION

The IQAC of the college focuses on the quality of teaching-learning and through it, new techniques in teaching process and structural reforms are suggested and introduced. The admission process is transparent in congregation with HNG University. College maintains reservation policy of state government. Students are given prospectus at the time of admission which contains detailed information about various subjects offered by the institution under CBCS system, co-curricular activities, NSS, NCC, Sports, add-on courses and other essential information. In the orientation programme, students are informed with college activities such as academic as well as co-curricular. Most of the faculties have been awarded the degree of Ph.D. All the classrooms are well equipped with LCD projector acrylic boards, podium, interactive penal board, HOP, visualize and 3 smart classrooms are also available in the college. Facility for the teaching and learning process in the staff room includes internet facility, LCD Projector, laptop, CDs. Students are encouraged to attend SANDHAN, a live teaching programme of the state government. Under CPE scheme, several workshops and seminar are organized by the college. Weekly tests and book review are compulsory as a part of continuous evaluation.

**CURRICULAR ASPECTS**

Add-on courses under UGC CPE scheme and government project	Spoken English
	Computer and IT skills
	Personality development
	Communication skills
	Jewellery designing
	Sewing and knitting
	Finishing School Programme
	Scope
Optional subjects under CBCS pattern	Indian constitution
	Panchayati raj
	Indian history
	Cultural heritage of Gujarat
	Personality development
	Motivation and disaster management
College activities	<i>Saptadhara</i>
	<i>Khelkud dhara</i>
	<i>Kala kaushalya dhara</i>
	<i>Sarjantmak dhara</i>
	<i>Nrutya dhara</i>
	<i>Natya dhara</i>
	<i>Gyan dhara</i>
	<i>Samudayik vichardhara</i>
Under UGC CPE scheme	14 research projects completed

### RESEARCH, CONSULTANCY AND EXTENSION

The institution is promoting research and consultancy throughout the year. The college has local research committee comprising of five members from various subjects under the coordinators. The college has established a research center, with well equipment and necessary research related books and journals. The faculties have completed 14 minor research projects under CPE scheme and more than 25 books have been published with ISBN number by the institute during the academic year of 2018-19. Along with the principal, four 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.

### STUDENTS SUPPORT AND PROGRESSION

- Under the poor student relief fund, those student who are really poor and do not get any kind of government scholarship, the college has paid their admission fees of the particular semester.
- The college also provides reading and study material to the economically challenged and weaker section students.
- In order to increase employability, college provides special coaching and guidance to the students under career counseling cell and Udisha.
- With a view of paying attention to the complaint of the students, various committees like the Students Council, Students Grievance Redressal Cell and Woman Cell have been formed.
- First Aid Box is available in the college for health related problems.
- Book Bank facility is also provided by college library.
- Every year Thalessemia test is done by the college by paying only Rs.100/- in association with India Red Cross Society.
- Health cards are issued in collaboration with Jivandhara Hospital.
- To aware the girl students an expert lecture on gynac problems are organized.

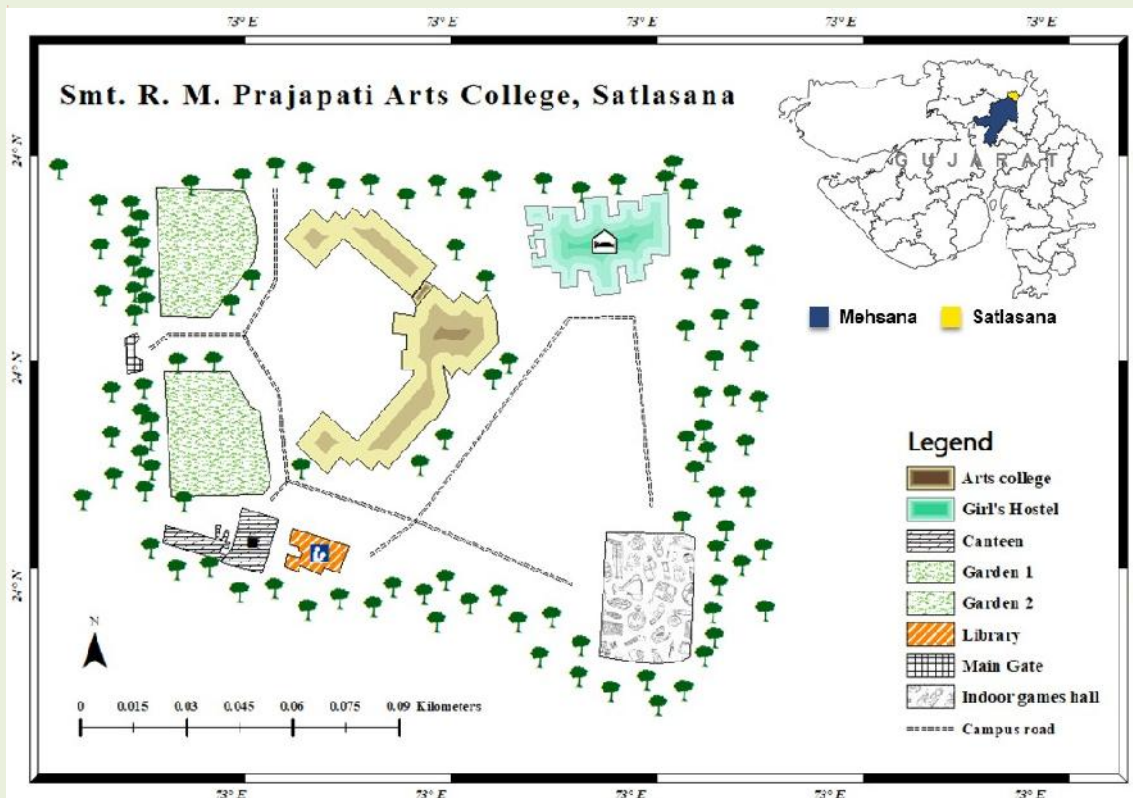
### GOVERNANCE, LEADERSHIP AND MANAGEMENT

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 remains present in various programmes and seminars organized by college. The management also sponsors the faculty to participate in national and international gatherings. Self-appraisal and academic performance of the staff members is also carried out every year and maintained.

### INNOVATIONS AND BEST PRACTICES

- Every year in the beginning of academic year, the college celebrates Environment Day by planting many trees in the college campus and other surrounding areas.
- The college also organizes Cleanliness Programme on 2<sup>nd</sup> October and 24<sup>th</sup> September.
- CC TV camera also helps in watching overall activities of the college.
- With the assistance from UGC, the college has Career Counseling Center to provide career and job related information to the students.
- Chabutara for birds is also made as a part of Jeevdaya.
- Vanche Gujarat Abhiyan has been implemented very properly under the president ship our principal at block level.
- College has Udisha Cell and entry in service programmes to organize many workshops and seminars as well as to provide coaching and reading material to the students registered under these programmes.
- Free wi-fi, xerox facility with duplicator, generator with 40 KV, parking, scanner printer, CCTV camera system with DVR also. Even regular maintenance is done with the help of UGC.

### TOTAL CAMPUS AREA & COLLEGE BUILDING SPREAD AREA



**CAMPUS INFRASTRUCTURE**

The entire campus is spread in total 5 acres from which 2741.58 m<sup>2</sup> areas is used for buildings and infrastructure.

**CONFERENCE ROOM**

There is a conference room aimed at providing space for the policy making bodies of the college.

**MULTI-PURPOSE ROOM**

The multi-purpose administrative room, which has the offices of Assistant Director, Vice Principal, Coordinators of IQAC and space for executive meetings and presentations.

**CLASS ROOM**

All 13 classrooms are well equipped with LCD projectors including audio-visual system.

**LIBRARY**

The college library is fully computerized with INFLIBNET facility and has a collection of more than 25,000 books and a subscription of about more than 60 periodicals and journals. Internet browsing is also available. The library also has two audio-visual rooms which are connected through satellite for live telecast of Sandhan.

**LANGUAGE LAB**

Lab with 24 computers which facilitates the students to fine tunes their communication skills.

**HOSTEL**

The Girls students are provided neat and safe residential accommodation at well equipped convent hostels in the vicinity of the college.

**SPORTS COMPLEX**

The college has a ground in which volley ball, shuttle badminton, football, cricket and other outdoor sports activities are made available for students.

**CANTEEN**

The college canteen caters to the nutritional needs of the staff and students at subsidized rates.

**GARDEN**

The college has ample garden area at the entrance of the college which includes around 400 plants of different variety. For the irrigation purpose the institute has established two tubes well and for the protection the college has built barbed fencing and a wall. Garden also comprises some fruit bearing plants, medical and timber plants. One full time gardener is recruited by the college management.



## CHAPTER 2

### PRE AUDIT STAGE

#### SCOPE AND GOALS OF GREEN AUDITING

A clean and healthy environment aids in effective learning and provides a conducive learning environment. There are various efforts around the world to address environmental education issues. Green Audit is the most efficient and ecological way to manage environmental problems. Green audit 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 Satlasana College for 2018-19, the Green Audit of the college conducted in July 2019.

A very simple indigenized system has been devised to monitor the environmental performance of Smt. R. M. Prajapati Arts College, Satlasana. 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 to help 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 and water 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 and improving 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 its environmental 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 ( $4.535 \times 10^{-3}$  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 tools such 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 employed / installed in your college?
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 – (Mention the type), Bus / Railway station, Market / Shopping complex / Public halls, residential area.
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 the compost 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-non teaching 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, canteen, drinking, hostel, washing and office uses.
2. Rain water harvesting and bore wale are main sources water in the campus.
3. Storage water: ground water storage and O2 tanks.
4. Water wastage mainly during urinals and toilets.
5. Water wastage can be prevented by: wisely flush in toilets.
6. Reuse and reduce are foremost ways to reduce amount of water used in college.
7. There is no water meter box in the college.
8. Number of water coolers: 04
9. Number of bathrooms in staff rooms, common, hostels: 10
10. Number of toilets: 20
11. Rain water harvesting system is available in the college.
12. Water fountains: 27
13. Leaky water fountains: none
14. Drip irrigation system available at border of the garden.
15. Every even days of month garden watered.



16. Water management plan: bore well
17. Drip irrigation system used for watering the plants in garden.

## **B) ENERGY**

1. Usage of energy through electricity, electric stove and LPG.
2. Electricity charges Rs. 217336 kwh/year.
3. LPG cylinders filled thrice in a year.
4. Total number of LED bulbs: 114
5. Total number of tube lights: 15
6. Total number of fans: 115
7. Total number of air conditioners: 07
8. Total number of computers: 100
9. Investors are not available in college.
10. Total number of generators: 01 with the capacity of 40 KV
11. Total number of TV: 04
12. Total number of R.O. system: 04
13. Total number of cooler: 04
14. Total number of UPS: 03
15. Total number of printer: 10
16. Total number of Photocopy machine: 03
17. Total number of CCTV camera: 60
18. Total 13 class rooms, 03 Smart class rooms, 01 Staff room, 01 auditorium hall, 01 language lab, 01 computer lab, 01 indoor games hall, 01 gymnasium room, 5 offices and 01 library.
19. College always follow switch off electrical equipments when not in use.
20. Computers are on power saving mode: yes.
21. Solar energy conservation method will shortly adopt for the college.

## 22. Calculation of energy for major electrical appliances used in college campus.

Name of Appliances	No. of appliances	Power consumption (watt)	Power consumption (KW)	Usage/day (hours)	Average kWh/day	Average kWh/month
Fan	115	60	0.06	05	34.5	897
LED	114	18	0.018	05	10.26	266.76
Tube light	15	20	0.02	05	1.5	39
Computer	100	200	0.2	05	100	2600
TV	04	50	0.05	05	1	26
Printer	10	40	0.04	05	2	52
Air conditioner	07	5000	05	05	175	4550
Cooler	04	40	0.04	05	0.8	20.8
Photocopy machine	03	20	0.02	03	0.18	4.68
CCTV camera	60	30	0.03	05	9	234

## C) WASTE

- Following are near from the college area: residential area. One sewer line and solid waste disposal pit are available within the college campus area.
- College generates e-waste, solid waste, dry leaves and canteen waste.
- There is a composting system to reduce canteen waste and garden waste.
- Generated wastes do not pollution ground/surface/air of the college.
- Generated wastes manage by composting (by dumping dry leaves and other garden wastes in it) and by recycling (through rain water harvesting technique).
- Solid waste as food waste, damage furniture, paper waste send to municipal waste collection centre and through this college achieve zero garbage.
- Total strength in the college:

	Students	No. of students	No. of teachers	No. non teaching staff
Gents		1401	17	08
Ladies		1207	05	--
Total		2608	22	08

## 8. Following all are available in the college campus:

Facility	Occupied area/ number
Garden area	04
Play ground area	01
Toilets (number)	10
Garbage dump (number)	14
Laboratory (Language lab)	01
Computer lab	01
Canteen	01
Parking area	02
Class rooms (number)	13
Office rooms (number)	05
Library	01
Gymnasium	01
Indoor games hall	01
Auditorium	01
Girls hostel	01

## 9. Approximate waste generated per day (in kilograms):

**Office**

Approx	Bio degradable	Non-Bio degradable	Hazardous	Others
< 1 kg.	--	--	--	--
2 - 10 kg	2 kg	05 kg	--	--
> 10 kg.	--	--	--	--

**Canteen/kitchen**

Approx	Bio degradable	Non-Bio degradable	Hazardous	Others
< 1 kg.	--	--	--	--
2 - 10 kg	8 kg	--	--	--
> 10 kg.	--	--	--	--

**D) GREEN CAMPUS**

10. College campus has a garden at the entrance of college.
11. Total number of plants identified: 383
12. Garden has lemon tree which gives fruit throughout the year.
13. Medicinal garden was available in the college campus till August 2019; afterwards it is replaced by class room and in auditorium hall.
14. Management recruited a gardener to maintain the garden and paid 6000/month to the gardener.
15. The college has one composting pit inside the campus.
16. Campus harbors many botanical tree species but there's no separated botanical garden.
17. College has one composting pit and it is used as fertilizer in the garden.
18. There are 27 fountains available along with drip system around the garden area.
19. Students actively organized nature awareness programmes such as:

➤ **World Environment Day –5<sup>th</sup> June**

Awareness seminars are organized on various environmental problems. Distribution of trees, poster exhibition etc. activities are done on that day.

➤ **Plantation of trees and No Plastic Zone**

College encourages environmental protection activities and organizes tree plantation and no plastic zone in the college campus. Plantation of trees activity done by the students and teachers on the date of 24<sup>th</sup> June, 2019, to spread its importance to students as tree plantation helps to reduce greenhouse gases and fight climate change; improving the quality of the natural environment, attracting more wildlife and increasing wildlife habitat as well as improving water quality in streams and ponds. Plastic hatavo activity organized by college to establish 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.

➤ **Swachh Bharat Abhiyan - 1<sup>st</sup> to 15<sup>th</sup> August**

Under the Swachh Bharat Abhiyan, college organized cleanliness programme for a week 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 - 2<sup>nd</sup> October**

Gandhi considered non-violence to be a philosophy, a principle and an experience based on which it is possible to build a better society.

College organized Gandhi JivanYatra with the help of Sadar Gram Seva Mahavidyalaya.

➤ **Unnat Bharat**

Unnat Bharatis an active campaign under NSS students. Five villages of Satlasana taluka are adopted under it. This campaign encourages students for student exchange programme under Ek Bharat Shreshtha Bharat.

➤ **Yoga and Health Awareness**

The purposes of yoga were to cultivate discernment, awareness, self-regulation and higher consciousness in the individual.

The Green campus drive is an initiative of the college to protect the environment. The campus is lush green with gardens, lawns, flowers and plants. There is a big pond at the far end of the college ground to collect water. Bio-degradable waste is collected and made into compost. Non-degradable and electronic waste and toxic materials are regularly disposed of.



**IMPORTANT TREES IN THE COLLEGE CAMPUS:**

Endangered Species

*Santalum album* (Chandan)

Fruit Yielding Plant

*Manilkara zapota* (Chiku)

Medicinal Plant

*Adhatoda vasica* (Ardusi)

Timber Plant

*Tectona grandis* (Teak)

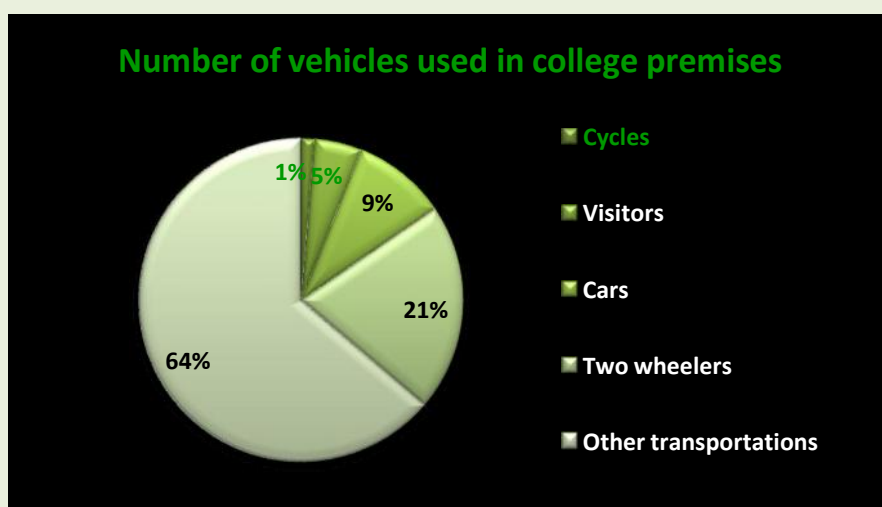
**COMMON TREES FOUND IN THE COLLEGE CAMPUS:**

<b>Sr. No.</b>	<b>Botanical Name</b>	<b>Local Name</b>	<b>Family</b>
1	<i>Acacia nilotica</i>	Bavad	Mimosaceae
2	<i>Adhatoda vasica</i>	Ardusi	Acanthaceae
3	<i>Aegle marmelos</i>	Bili	Rutaceae
4	<i>Alstonia scholaris</i>	Saptparni	Apocynaceae
5	<i>Azadirachta indica</i>	Limdo	Meliaceae
6	<i>Delonix regia</i>	Gulmohar	Caesalpiniaceae
7	<i>Ficus racemosa</i>	Umaro	Moraceae
8	<i>Gmelina arborea</i>	Sevan	Verbenaceae
9	<i>Manilkara zapota</i>	Chiku	Sapotaceae
10	<i>Mimusops elengi</i>	Borsali	Sapotaceae
11	<i>Polyalthia longifolia</i>	Asopalav	Annonaceae
12	<i>Prunus dulcis</i>	Badam	Rosaceae
13	<i>Pterospermum acerifolium</i>	Kanaki	Malvaceae
14	<i>Santalum album L.</i>	Chandan	Santalaceae
15	<i>Tectona grandis</i>	Sag	Lamiaceae
16	<i>Beaucarnearecurvata</i>	Bottle palm	Arecaceae
17	<i>Casuarina equisetifolia</i>	Saru	Casuarinaceae
18	<i>Butea monosperma</i>	Khakhro	Fabaceae
19	<i>Ficus carica</i>	Anjir	Moraceae
20	<i>Bombax ceiba</i>	Vans	Malvaceae

Sr. No.	Botanical Name	Local Name	Family
21	<i>Cordia dichotoma</i>	Gundo	Boraginaceae
22	<i>Magnolia champaca</i>	Champo	Magnoliaceae
23	<i>Alstonia scholaris</i>	Arethi	Apocynaceae
24	<i>Citrus limon</i>	Limbudi	Rutaceae
25	<i>Eucalyptus obliqua</i>	Nilgiri	Myrtaceae
26	<i>Cascabela thevetia</i>	Karen	Apocynaceae
27	<i>Lawsonia inermis</i>	Vad mehandi	Lythraceae
28	<i>Ficus religiosa</i>	Pipado	Moraceae

### E) CARBON FOOTPRINT

20. Total Number of vehicles used by the students of the college: 25
21. Parent-teacher meetings done twice in a year
22. There is one generators in the campus
23. There is a carbon pooling system in the campus which minimizes the atmospheric carbon emission.
24. Below diagram shows per day total number of persons using cycles: 2, cars: 14; two wheelers: 31; other transportations : 95 and visitors: 7





**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.
- Energy efficient electrical equipments especially fans and pump sets can be replaced against old ones.
- Awareness programs for the students to save energy may also increase sustainability in the utilization of various energy sources.
- The composting facility of the college for the treatment of biodegradable waste generated from the canteen, office, vegetable garden, and from the college campus cleaning operations is not adequate.
- A model solid waste treatment system can be established in the college as a part of awareness program to the students.
- The college has ample land surface for greening initiatives as total 383 plants identified in which total different 33 tree species with 27 tall trees, 06 herbs and shrubs are present.
- Burning of fossil fuels is the main source and cause of carbon dioxide release to the atmosphere. Carbon dioxide release by the vehicles used by the students and faculties to reach the college is under the level.
- More trees may be planted in the campus to make a source of sink for the carbon dioxide and for other green house gases.

**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 World Environment Day, Swachh Bharat Abhiyan, Plantation of trees and No Plastic Zone, Celebration of Gandhi Jayanti, Unnat Bharat, 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.

## 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

- The installation of solar panels under the practices.
- Gardens inside the college premises are found well maintained.
- Use of notice boards and signs are adequate to reduce over exploitation of natural resources.
- Programs on green initiatives should increase.
- Campus is plastic free zone.
- College has some major techniques like, Rain water harvesting systems, environmental education programs and solar power system will shortly available in the college.
- To aware and protect the environment the sign board is kept at all classrooms of the college.

## WATER AUDIT

- There is enough water consumption monitoring system in the college campus.
- The college has managed to collect all excretory waste material in absorption pit which further used as a fertilizer in the garden of the college campus.
- The architectural planning of college building is designed in such a way that the rain water can be harvested into the ground surface of the campus.
- Automatic switching system installed to stop overhead tank filling.

## ENERGY AUDIT

- Objectives for reducing energy, water and fuel consumption should be done.
- The older generator and non energy efficient equipments should be replace with new energy efficient equipments.
- Regular monitoring of equipments and immediate rectification of any problems should be done as safety precaution in the campus.

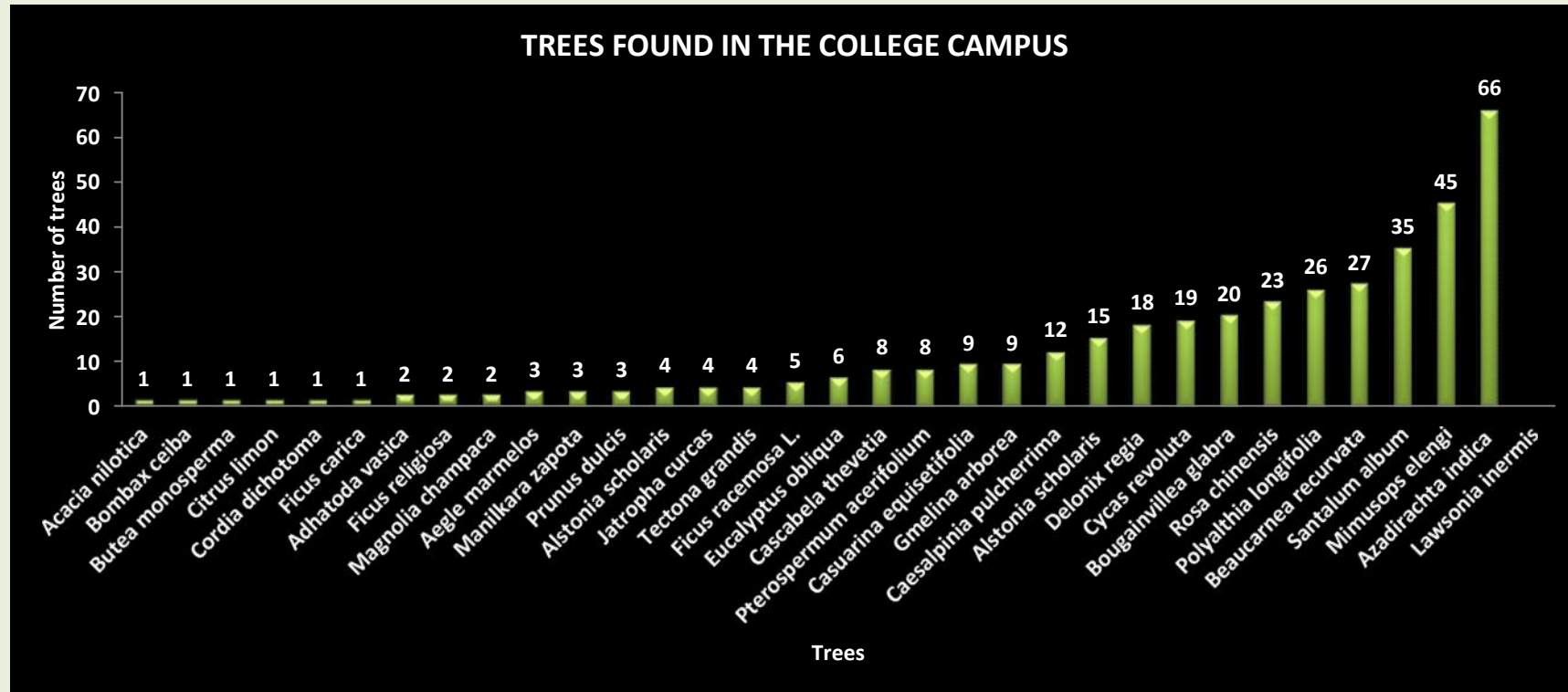
**WASTE AUDIT**

- Solid waste (garden waste) management system is maintained.
- The college has proper communication with the local body for regular collection of other solid 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 to identify plants.
- There are inadequate fruit trees in the college to attract birds.
- Registry for flora and fauna on the campus is lacking.
- Total 383 plants are available in the garden in which 282 tall trees and around 101 herbs and shrubs are present in the college campus.

TREES FOUND IN THE COLLEGE CAMPUS



Besides counting of campus trees, individually 282 tall trees were estimated for carbon sequestration. 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 below pictures. The total carbon sequestered by these trees was 49.586 t/year in which highest potentiality of carbon sequestration was observed in *Azadirachta indica* (32.26 t/year) and the lowest potentiality of carbon sequestration was observed in *Cordia dichotoma* (0.47 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.



### CARBON FOOT PRINT AUDIT

The U.S. Energy Information Administration states that 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.

- College has initiative for carbon accounting.
- Adequate transportation facilities in the college.
- College should encourage the students and faculties to use cycles.

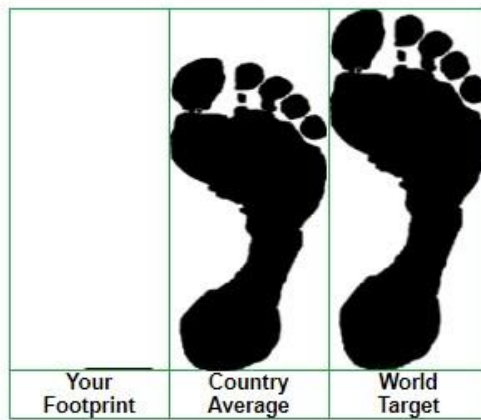
**Your Carbon Footprint:**

- House 0.00 tonnes of CO<sub>2</sub>e
- Flights 0.00 tonnes of CO<sub>2</sub>e
- Car 0.00 tonnes of CO<sub>2</sub>e
- Motorbike 0.00 tonnes of CO<sub>2</sub>e
- Bus & Rail 0.00 tonnes of CO<sub>2</sub>e
- Secondary 0.00 tonnes of CO<sub>2</sub>e

**Total = 0.00 tonnes of CO<sub>2</sub>e**

To offset some or all of your carbon footprint, tick the sections you would like to offset in the list above, and click the Offset Now button.

**Total To Offset = 0.00 tonnes of CO<sub>2</sub>e** [Offset Now](#)



- Your footprint is 0.00 tonnes, which equates to 0.00 tonnes per year
- The average footprint for people in India is 1.73 tonnes
- The average for the European Union is about 6.4 tonnes
- The average worldwide carbon footprint is about 5 tonnes
- The worldwide target to combat climate change is 2 tonnes

## CHAPTER 4

### FINDINGS

#### PREPARATION OF ACTION PLAN

Policies referring to college management and approaches towards the use of resources need to be considered. 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 programs and 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 the wider 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 as social level will help to avoid air and noise pollution in the campus due to vehicles.

## CONCLUSION AND FULL LIST OF RECOMMENDATIONS

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 assist in 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.

## 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.

## CRITERIA WISE RECOMMENDATIONS

### WATER

- Remove damaged taps and install sensitive taps is possible.
- Awareness programs on water conservation to be conducted.
- Install display boards to control over exploitation of water.

### 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.



## WASTE

- Establish a functional biogas plant.
- A model vermi-composting plant to be set up in the college campus.
- Establish a plastic free campus.
- Avoid paper plates and cups for all functions in the college.

## GREEN CAMPUS

- 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.
- Not just celebrating environment day but making it a daily habit.
- 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.

## CARBON FOOTPRINT

- Increase a system of car pooling among the staff to reduce the number of four wheelers coming to the college.
- Encourage students and staff member to use cycles.
- Discourage the students using two wheelers for their commutation.

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