Greenex ENVIRONMENTAL

Certificate

This is to certify that

Dayanand College of Pharmacy, Latur

has successfully undergone Green and Environmental Audit for the year 2019-2020 by Greenex Environmental, Pune.

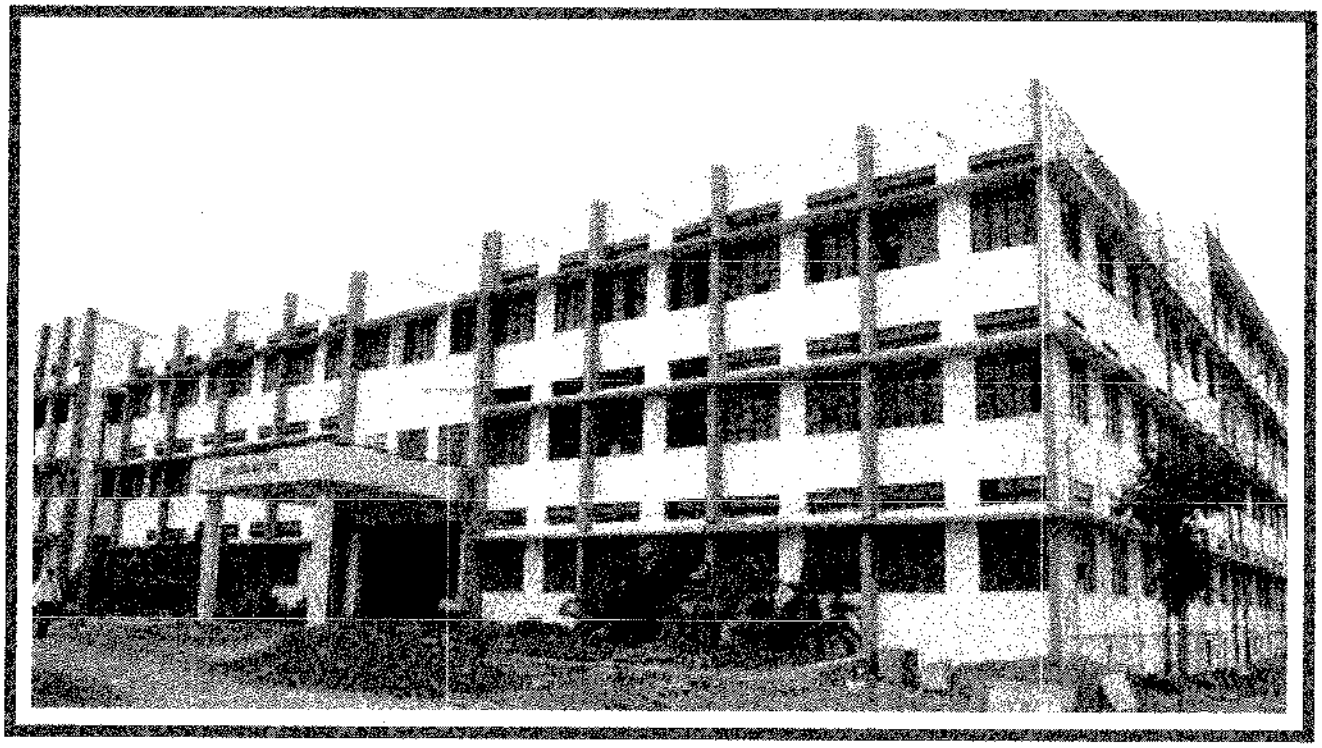
Place: Pune

GREENEX ENVIRONMENTAL Pune

Arati Bhosale
EMS Lead Auditor
Greenex Environmental

Greenex ENVIRONMENTAL

Green and Environmental Audit Report 2019-2020



Dayanand College of Pharmacy

Barshi Road, Latur – 413531.

By
GREENEX ENVIRONMENTAL
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Acknowledgement

We would like to express our sincere gratitude towards all who made it possible for us to complete the Green Audit of Dayanand College of Pharmacy, Latur smoothly. We would like to extend our gratitude to Dr. Kranti Satpute, Principal, Dayanand College of Pharmacy for offering us the opportunity to perform Green Audit of Dayanand College of Pharmacy, Latur. We would also like to thank Mr. Raghunath Wadulkar and MR. Rohit Sarda, Assistant Professors, Dayanand College of pharmacy for making time and assisting us throughout the audit.

We would like to thank each and every staff member of the college who helped us collect the resourceful data. Last but not the least; we thank our team for their unwavering support.

- Greenex Environmental

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Figure 1: Dayanand Education Society

1.1.1 Infrastructure

Dayanand Education Society has 14 buildings in the campus namely:

1. Dayanand College of Commerce
2. Dayanand College of Art
3. Dayanand Science College
4. Dayanand College of Law
5. Dayanand College of Pharmacy
6. Dayanand Collage of Animation
7. Dayanand College of fashion designing and interior decoration
8. Dayanand College of Architecture
9. Girl's Hostel
10. Boy's Hostel

11. Library
12. Auditorium
13. Indoor Stadium and Gymnasium
14. Cricket Ground

Figure 2: Google Earth image of Dayanand Education Society

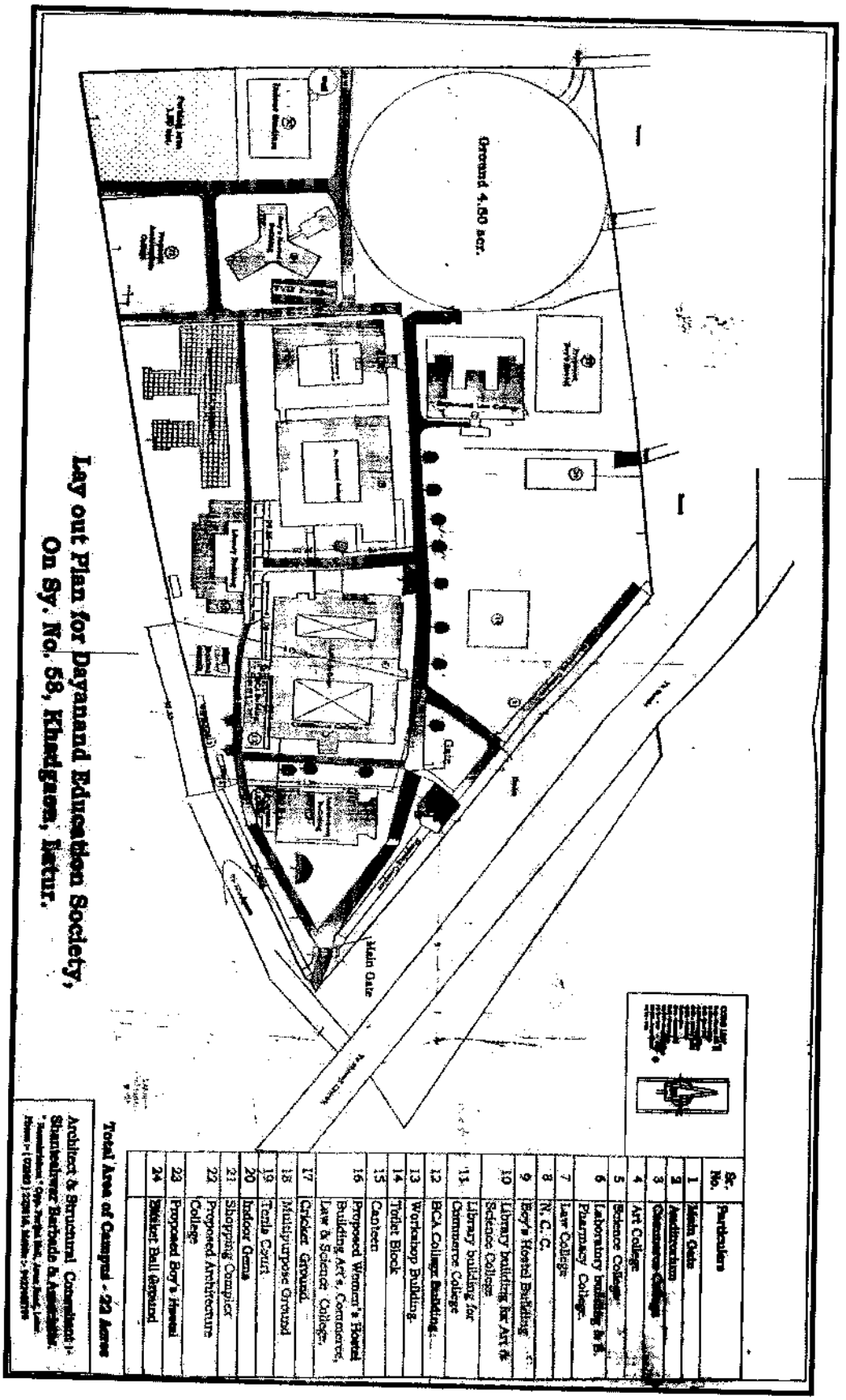


Figure 3: Layout of the Education Society

1.2 Dayanand College of Pharmacy

With the view of fulfilling the needs of rising Pharmacy profession by donating professionally competent and technically skilled Pharmacy graduates in the region, state and the Nation Dayanand college of pharmacy is a pioneering institution in the pharmaceutical education was established in 2009 with the aim to provide better education and knowledge of pharmaceutical science, in addition to this to contribute to the health of the society through educational and research programmes. The Pharmacy institution started with B.Pharmacy (Four Years Degree Course) and recognized by AICTE, New Delhi, and DTE Mumbai & affiliated to S.R.T.M.U. Nanded.

Dayanand College of pharmacy initially started course B.Pharmacy in 2009; later in 2019 new course D.Pharmacy was started. Till date approximately 400 students have been graduated and 60 diploma students have been passed out from the organization. College has excellent infrastructure and well qualified expert faculty. Dayanand College of Pharmacy has excellent pharmacy setup that allows the students to get a better grasp of the practical subject knowledge. Our prime focus is always laid on research as this sole factor shall contribute greatly towards a successful career ahead. This is achieved by numerous state-of-the-art labs of various departments like pharmaceutics, pharmaceutical chemistry, pharmacology, pharmacognosy supported by well-trained lab technicians where students get to perform practical under the guidance of experienced faculty. College library is fully computerized by using software for maintaining the library operations. Hostel facility is provided for girls as well as boys.

Every year college actively organizes different seminars, webinars, guest lectures from national and international speakers for students. Every year, college is taking active participation in NSS activities and camp to improve social behaviour of students. For improving mental and social health of students, college organizes free yoga sessions for students. In every month, alumni interaction is arranged for students to guide students regarding scope and opportunities in various fields as well as higher education.

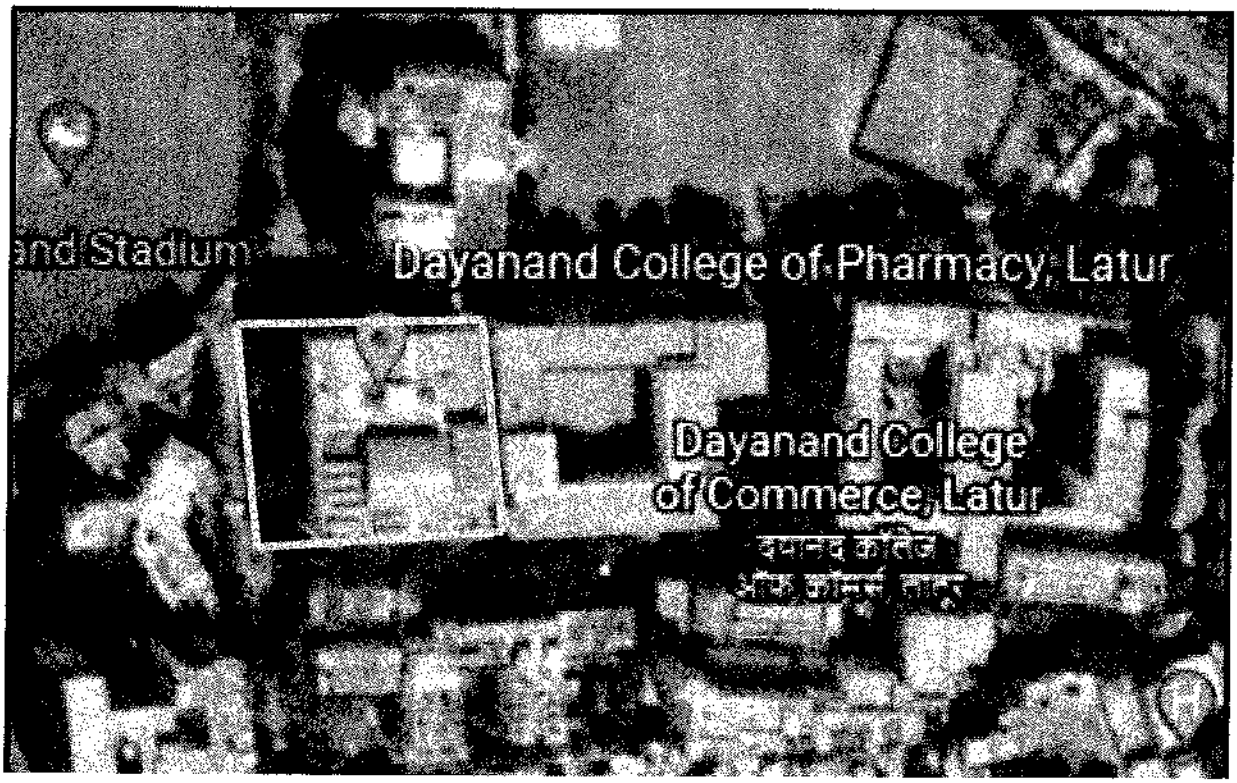


Figure 4: Google Earth image of Dayanand College of Pharmacy

Figure 5: Dayanand College of Pharmacy

1.3 Vision and Mission of College

Vision

To nurture the future pharmacists with focused approach for overall professional development and excellence.

Mission

1 – To inculcate the research environment amongst staff and students

2 – To assist the students for financial support during their education by introducing various scholarship schemes offered by different agencies/NGO'S

3 – To provide the students all the learning facilities, along with understanding of ethical values and morality

Program Educational Objectives

1 – Pharmacy Graduates prepared for higher studies and career growth

2 – Pharmacy Graduates encouraged to acquire knowledge and competency as per the need of pharmaceutical and allied industries

3 – Pharmacy Graduates motivated to serve the community by creating awareness about social and healthcare services.

1.4 Organizational Chart of Dayanand College of Pharmacy

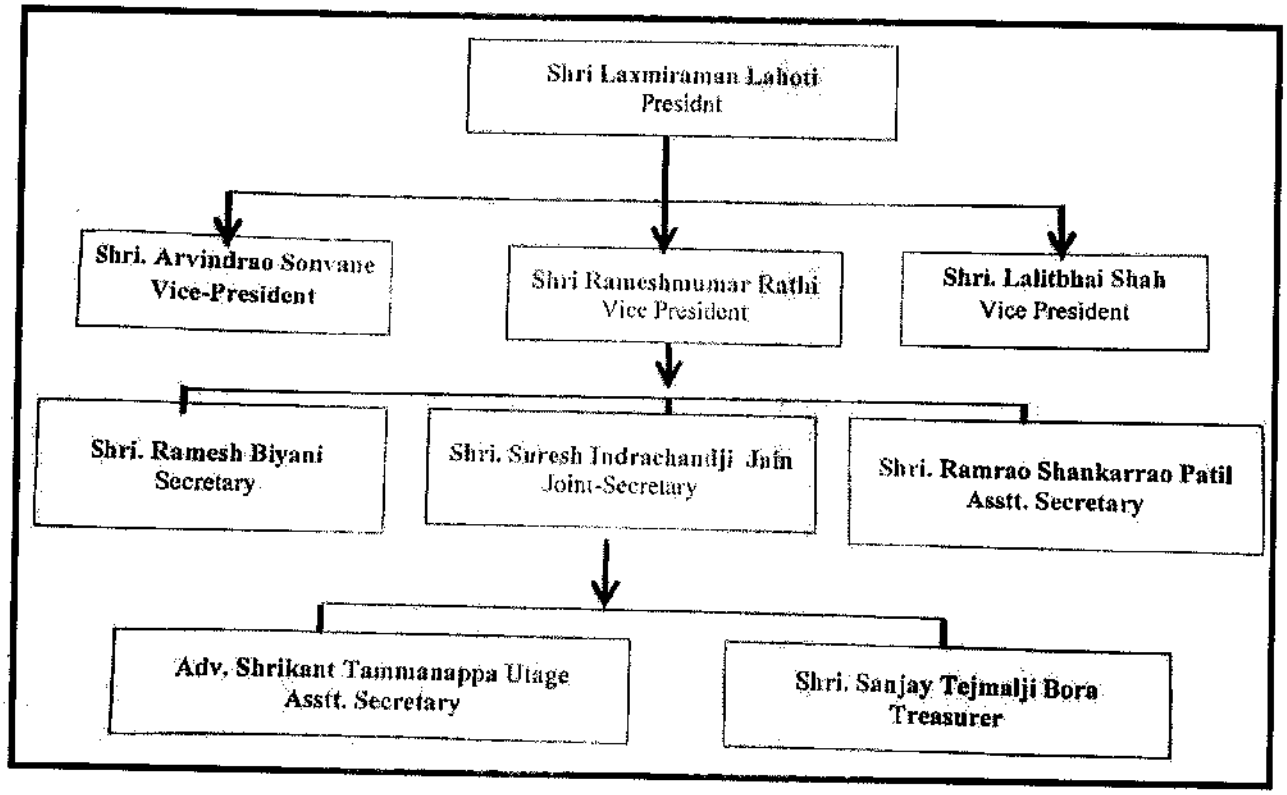


Figure 6: Organizational Chart of Dayanand College of Pharmacy

2.0 Green Audit and Environmental Audit

2.1 Green audit

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of various establishments. It aims to analyze environmental practices within and outside of the concerned sites, which will have an impact on the eco-friendly ambience.

Green audit can be a useful tool for 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. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students a better understanding of Green impact on campus. 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.

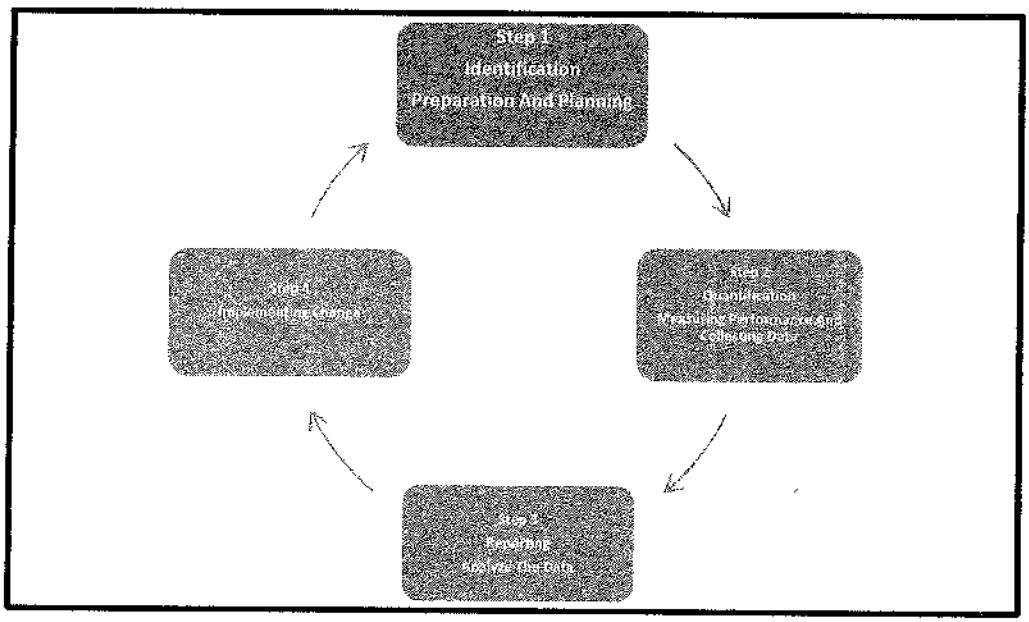


Figure 7: Steps of Green Audit

The rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institutes which will lead for sustainable development and at the same time reduce a sizable amount of atmospheric carbon-di-oxide from the environment. **Green Audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council** that declares the institutions as Grade A, Grade B or Grade C according to the scores assigned at the time of accreditation. Moreover, it is a part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures.

Therefore, the purpose of the present green audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards.

2.1.1 Need for Green Audit

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

Green Audit is the most efficient ecological tool to solve environmental problems. It is a process of regular identification, quantification, documenting, reporting and monitoring of environmentally important components in a specified area. Through this process the regular environmental activities are monitored within and outside of the concerned sites which have direct and indirect impact on surroundings. Green audit can be one of the initiative for such institutes to account their energy, water resource use as well as

wastewater, solid waste, E-waste, hazardous waste generation. Green Audit process can play an important role in promotion of environmental awareness and sensitization about resource use. It can create consciousness towards ecological values and ethics. Through green audit one can get direction about how to improve the condition of environment.

The major objective of performing Green Audit is controlling the pollution. It also helps in improving the safety and to making sure the prevention and reduction of the waste. It also provides performance reviews of working facilities and its possible impact on the surroundings. Audits enable the management of an organization to see exactly what is happening within the organization and to check the operation (or otherwise) of systems and procedures. Environmental auditing can help to reveal the likely weaknesses of an organization's strategy, therefore reducing the risk of unexpected events. A properly prepared and conducted environmental audit will bring real benefits to an organization committed to act on the results.

2.2 Environmental Audit

An environmental audit is a type of evaluation intended to identify environmental compliance and management system implementation gaps, along with related corrective actions. In this way they perform an analogous (similar) function to financial audits. There are generally two different types of environmental audits: compliance audits and management systems audits.ISO 14001 is a voluntary international standard for environmental management systems ("EMS"). ISO 14001:2004 provides the requirements for an EMS and ISO 14004 gives general EMS guidelines.

The Supreme Audit Institution (SAI) in India is headed by the Comptroller and Auditor General (CAG) of India who is a constitutional authority. The audit conducted by CAG is broadly classified into Financial, Compliance and Performance Audit. Environmental audit by SAI India is conducted within the broad framework of compliance and performance audit.

Environmental auditing is a systematic, documented, periodic and objective process in assessing an organization's activities and services in relation to:

- Assessing compliance with relevant statutory and internal requirements
- Facilitating management control of environmental practices
- Promoting good environmental management
- Maintaining credibility with the public
- Raising staff awareness and enforcing commitment to departmental environmental policy
- Exploring improvement opportunities
- Establishing the performance baseline for developing an Environmental Management System (EMS)

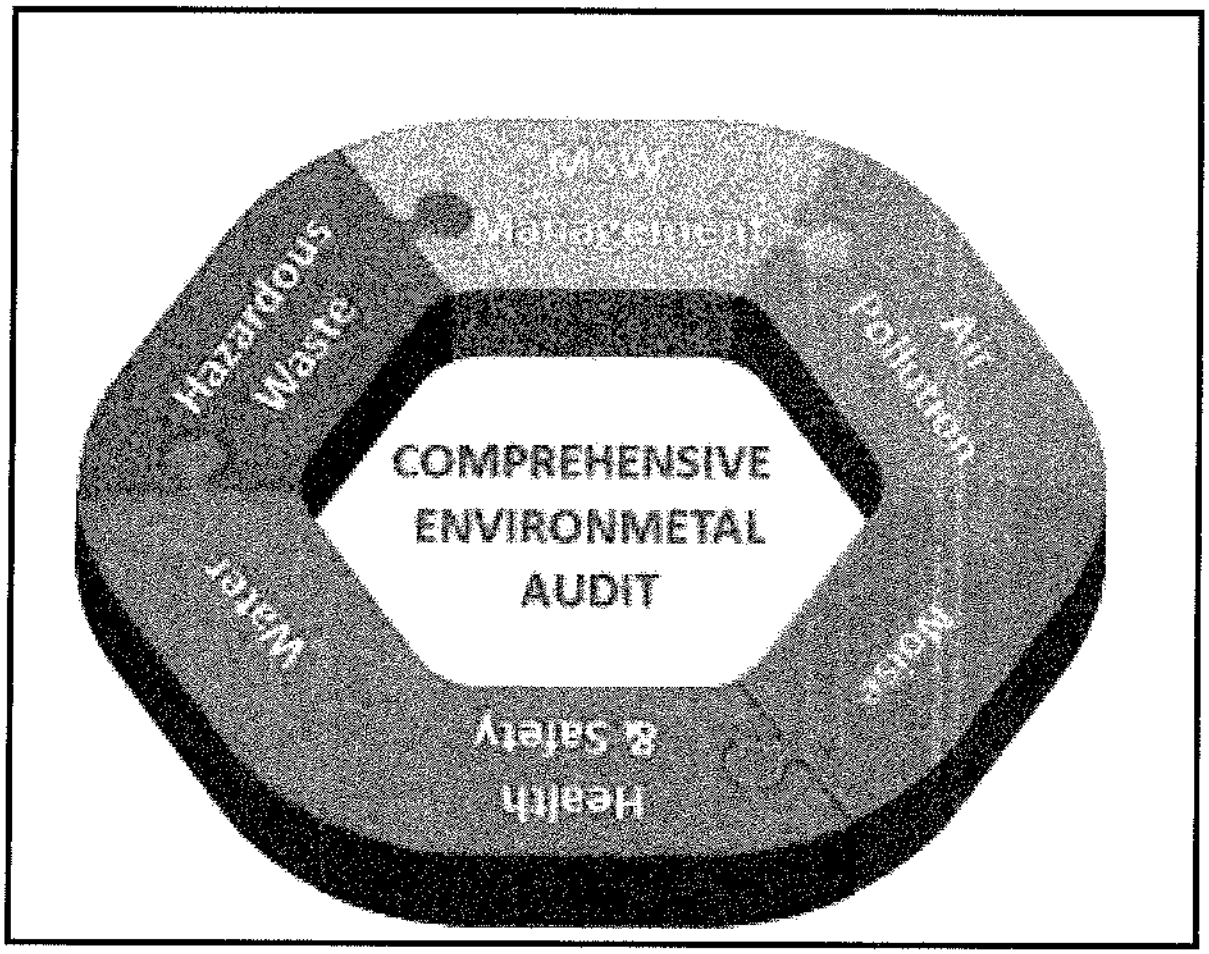


Figure 8: Aspects of Environmental Audit

3.0 Objectives of Green audit

The overall objective of green auditing is to help safeguard the environment and minimize risks to human health. The key objectives of an environmental audit therefore are to:

- To determine how well the environmental management systems and equipment are performing
- To verify compliance with the relevant national, local or other laws and regulations
- To minimize human exposure to risks from environmental, health and safety problems.
- More efficient resource management
- To provide basis for improved sustainability
- To enable waste management through reduction of waste generation, solid- waste and water recycling
- To create green plastic free campus and evolve health consciousness among the stakeholders
- To Recognize the cost saving methods through waste minimizing
- To Point out the prevailing and forthcoming complications
- Impart environmental education through systematic environmental management approach and improving environmental standards
- Financial savings through a reduction in resource use
- Enhancement of college profile
- Developing an environmental ethic and value systems in students

4.0 Goals of Green Audit

- To achieve compliance standards and establish a report with regulatory bodies
- To identify needs, strengths, and weaknesses of the educational institute
- To review management systems and identify liabilities
- To assess environmental performance of the educational institute with the help of direct assessment.
- To promote environmental awareness among the staff and students
- To conserve non-renewable resources for betterment of future
- The long term goal is to collect the baseline data in terms of environmental parameters, calculate its impact on the environment and recommend measures to reduce them

Figure 9: Goal of Green Audit

5.0 Target Areas of Green and Environmental Auditing

- **Energy Conservation and Management:** This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliances, and vehicles.

- **Water Quality and Conservation:** This indicator addresses water consumption, water sources, irrigation, storm water, appliances and fixtures.

- **Biodiversity Conservation:** All plant and animal species - including microorganisms - are a part of biodiversity. All types of gardens, lawns and trees are considered in this aspect.

- **Waste Management:** This indicator addresses all types of waste from college and associated amenities. The minimization, safe handling, and ultimate elimination of these materials are essential to the long-term health of the planet.

- **Carbon Footprint:** This aspect is for quantifying the carbon emissions from all the parts of the institution and quantifying how much of it is sequestrated with the help of landscape.

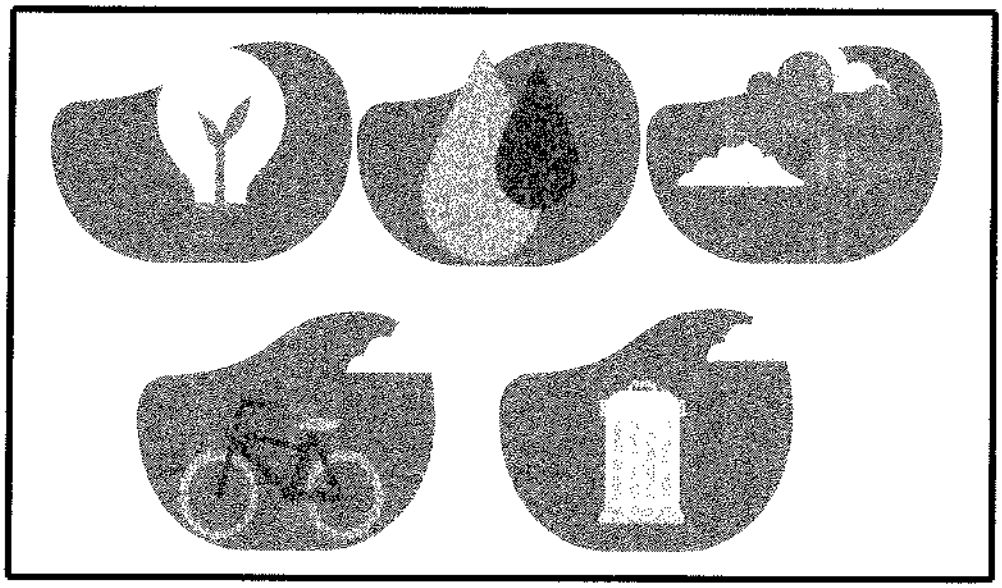


Figure 10: Target Areas of Green Audit

6.0 Methodology

6.1 Data Collection

In preliminary data collection phase, exhaustive data collection is performed using different tools such as preparation of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons, etc. Focus groups, if practiced, can also be a vital part of data collection stage to acquire qualitative information. The discussion should be focused on identifying the attitudes and awareness towards environmental issues at the institutional and local level. Questionnaire (Annexure) prepared to conduct the green audit in the campus is in accordance with the guidelines, rules, acts and formats prepared by Ministry of Environment and Forest, New Delhi, Central Pollution Control Board and other statutory organizations. The data covers the target areas to summarize the present status of environment management in the campus.

6.2 Survey by Questionnaire

Baseline data for green audit report preparation was collected by questionnaire survey method. Most of the guidelines and formats are based on broad aspects. Therefore, using these guidelines and formats, combinations, modifications and restructuring was done and sets of questionnaires were prepared as solid waste, energy, water, biodiversity, carbon footprint. All the questionnaires comprises of group of modules. The first module is related to the general information of the concerned department, which broadly includes name of the department, month and year, total number of students and employees, visitors of the department, average working days and office timings etc. The next module is related to the present consumption of resources like water, energy, or the handling of solid and hazardous waste. One separate module is based on the questions related to the losses. Another module is related to maintaining records, like records of disposal of solid waste, records of solid waste recovery etc

6.3 Data Analysis

The data required for the analysis is taken from the data collection, it includes: calculation of energy consumption, analysis of latest electricity bill of the campus, measuring water consumption, carbon foot printing, etc. The data from questionnaire and survey forms is tabulated for the convenience of data availability; Recommendations and Environmental Management Plan is built according to the analysis done in this step.

6.4 Recommendations and Reporting

Based on the data analysis step, some recommendations in the target areas are made. Specific measures are suggested to reduce water and energy consumption. Proper treatments of waste are suggested with respect to waste collection, waste disposal and recycling. Recommendations to reduce the use of fossil fuels are made for the betterment of community health. Proper disposal of hazardous waste is suggested to prevent mishaps. Management also takes into account the suggestions related to reducing their carbon footprint.

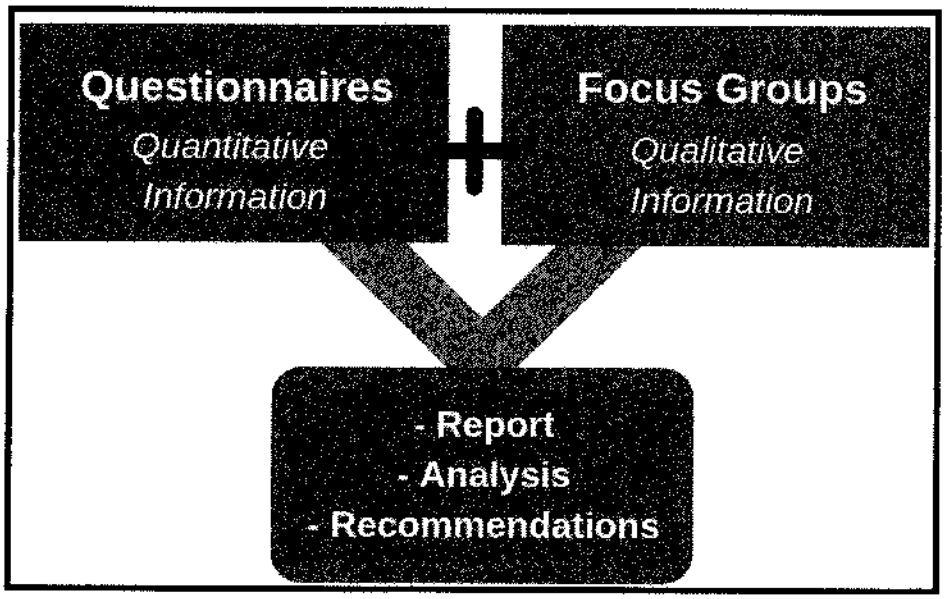


Figure 11: Green Audit Methodology

7.0 Detailed Analysis

7.1 Water quality and conservation

We investigate the relevant method that can be adopted and implemented to balance the demand and supply of water. The overall objective of conducting a water audit is to identify opportunities to make system or building water use more efficient.

This indicator addresses water consumption, water sources, irrigation, storm water, appliances and fixtures. The data collected from all the sections is examined and verified. Water consumption data tabulated below is then used for analysis and reporting.

a) Water Consumption:

Total Water Consumption of Dayanand College of Pharmacy is 11.5m^3/day

Table No. 1: Daily Water Consumption

Parameter	Quantity	Total water consumption
Total Overhead tanks	6	**11.5 m^3**
Capacity of each tanks	1 - 6m^3 3 – 1m^3 1 – 2m^3 1 – 0.5m^3	
Total capacity	11.5 m^3	
Frequency of water filling	Once a day	

There are 6 overhead tanks of 1 m^3, 6m^3, 2m^3 and 0.5m^3 each in total on the roof with the capacity of 11.5 m^3 which is filled once a day.

b) Current practices of waste water management:

Conserving water is important because it keeps water pure and clean while protecting the environment. Conserving water means using our water supply wisely and be responsible. As every individual depends on water for livelihood, we must learn how to keep our limited supply of water pure and away from pollution.

Sewage treatment plant (STP) treats about 30 m^3 of water per day which comes from girls hostel and boys hotel and the treated water is then reused for watering plants and cricket stadium ground.

Treatment scheme:

To have eco-friendly and natural treatment, this plant is designed based on the biological treatment concept. This means naturally occurring microbes removes or degrade the organic matter present in the sewage and at the end the clean water is available for non-potable usage or to dispose safely in the drainage or the river bodies as per the norms.

The treatment is done in following steps:

1. **Pre-treatment**:
   - 1.1 Screening: This is the first units of the plant in which large or floating materials in the sewage gets arrested and blockage or choking of the downstream equipment's can be avoided. This arrested material will be removed manually and then will be disposed of suitably.
   - 1.2 Equalization: To absorb variation in quantity and quality of sewage and to provide uniform flow at the downstream treatment process, a collection or equalization tank is provided. This will avoid shock loading and process upsets of the treatment plant.
   - 1.3 Fine Screening: After the separation of floating materials and equalization of raw influent form equalization tank will pass through the fine screen which having 4 mm pore size and separate the fine particles from the raw effluent.
2. **Secondary Treatment**:
   - 1.1 Biological Treatment: This is the main section of the plant where degradation of organic pollutants with the help of aerobic micro-organism takes place. To provide higher surface area for micro-organism, floating media is provided. On which micro-organism growth takes place.
   - 1.2 Tube Settler: Gravity overflow from the bioreactor is collected in the tube settler tank. In this settling tank, generated sludge from the bioreactor undergoes a gravity settling.

1.3 Disinfection: Supernatant from Tube settler, flow by gravity to the Filter Feed tank. To disinfect the harmful bacteria in the treated water as well as to remove the refractory organics from treated water, in this tan 'Chlorine with the help of dosing system.

3. Tertiary treatment

Secondary treated water will be further passed through sand media filter followed by activated carbon filter.

The Clarified water is first passed through a Pressure Sand filter to reduce the suspended solids and organic matter present in the raw water. Pressure sand filter bed consists of multi-grade Sand media the filter will have to be washed with the help of raw water for 10 to 15 minutes daily. This filter is provided to keep a check on the suspended solids.

The plant is designed to treat sewage generated having following characteristics:

Table No. 2: Daily specifications of STP

Particulars	Characteristics
Nature of waste water	Domestic sewage
Flow	30 m^3 /day
Average flow	1.25 m^3/hr
Operating period	16 hrs/day
Design average flow	2.5 m^3/hr

Raw sewage parameter (at the inlet of collection tank/ septic tank):

Table No. 3: Raw sewage parameter

Sr. No.	Parameters	Range	Unit
1	pH	6.5-8.0	-
2	COD	<350	Mg/lit
3	BOD(5 days @ 25 C)	<300	Mg/lit
4	Suspended solids	<500	Mg/lit
5	Oil and grease	<50	Mg/lit

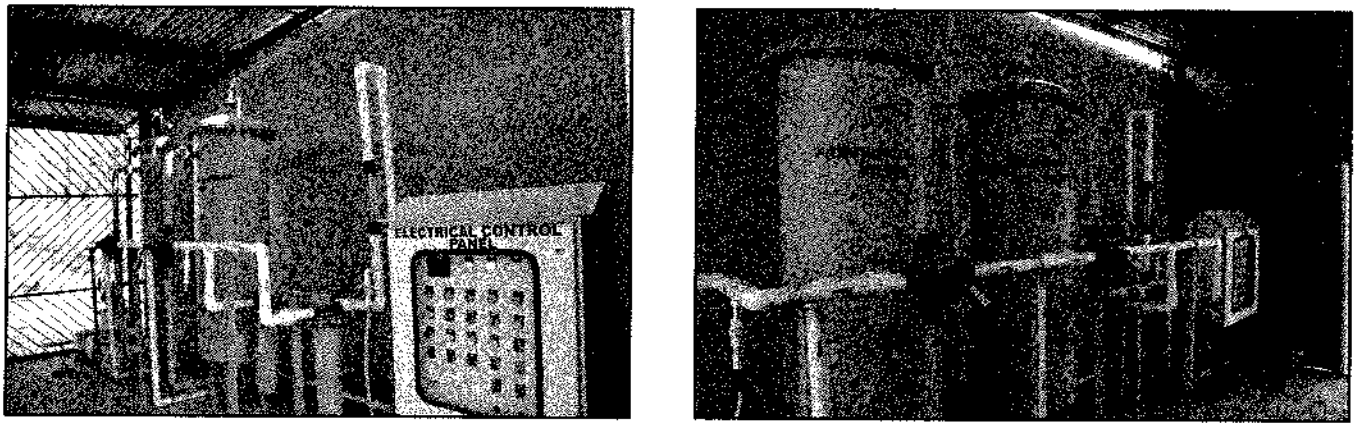


Figure 12: Sewage Treatment Plant

Treated water parameter (after tertiary filtration system):

Table No. 4: Treated water parameter

Sr. No.	Parameters	Range	Unit
1	pH	6.5-8.0	--
2	COD	<30	Mg/lit
3	BOD(5 days @ 25 C)	<10	Mg/lit
4	Suspended solids	<05	Mg/lit
5	Oil and grease	<01	Mg/lit

Rainwater harvesting: Rainwater harvesting (RWH) is the collection and storage of rain, rather than allowing it to run off. Rainwater is collected from a roof-like surface and redirected to a tank, deep pit.

Rain Water Harvesting is practiced by the institute that produces 530 m^3 of water.

Campus has prepared pits for rainwater harvesting in the following places:

Table No. 5: Rainwater harvesting details

Sr. No.	Building name	Size of rainwater harvesting area Sq ft	No. of pits
1.	Dayanand BCA college	4455	02
2.	Dayanand canteen	11657	04
3.	Dayanand swanstha karyalay	17800	18

4.	Dayanand arts college	23340	04
5.	Dayanand commerce college	25343	04
6.	Dayanand indoor stadium	12920	02
7.	Dayanand commerce library	2704	01
8.	Dayanand arts and science library	7748	03
9.	Dayanand boys hostel	8250	06
10.	Dayanand girls hostel	25619	05
11.	Dayanand pharmacy college	11173	03
12.	Dayanand law college	12792	02
13.	Dayanand science college	49781	05
14.	Dayanand rashtriya pati ground	163800	04
15.	Dayanand parking ground	13780	02
	Total	**512173**	**65**

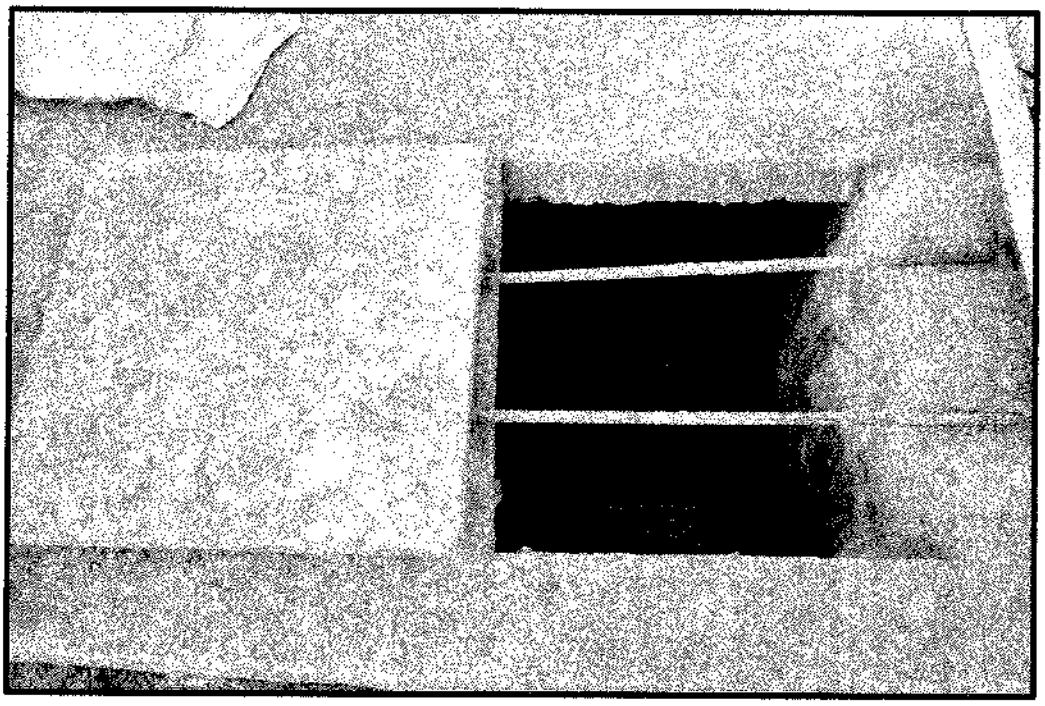


Figure 13: Rain Water Harvesting

7.2 Energy Conservation and Management

This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliances, and vehicles. Energy sources utilized by all the departments and services of college include electricity, liquid petroleum and LPG. Data for electricity consumption of the college for various departments was collected and is listed below.

a) Electricity consumption:

Total electricity consumption of Dayanand College of Pharmacy is 4717 KWH/month

Table No. 6: Electricity Consumption per month

Sr. No.	Electricity Consumption (KWH per month)	Source
1.	4717	MSEDCL
2.	2890	Solar Panels

Alternate Energy Initiatives:

The Institute has installed Solar Power Plant.

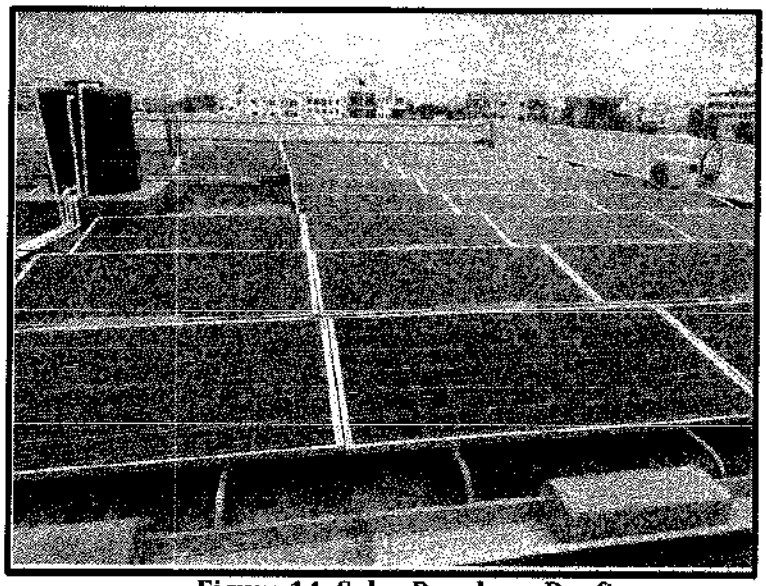
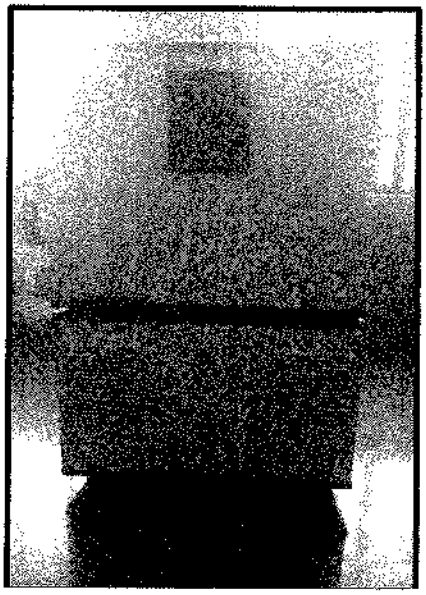
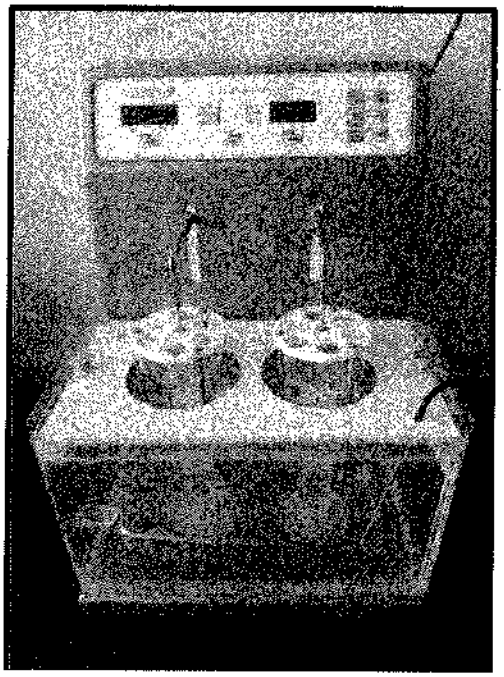


Figure 14: Solar Panels on Rooftop

Annual Power requirement met by renewable energySource

19 KWP Total Power generated KWH = **34675** units /year





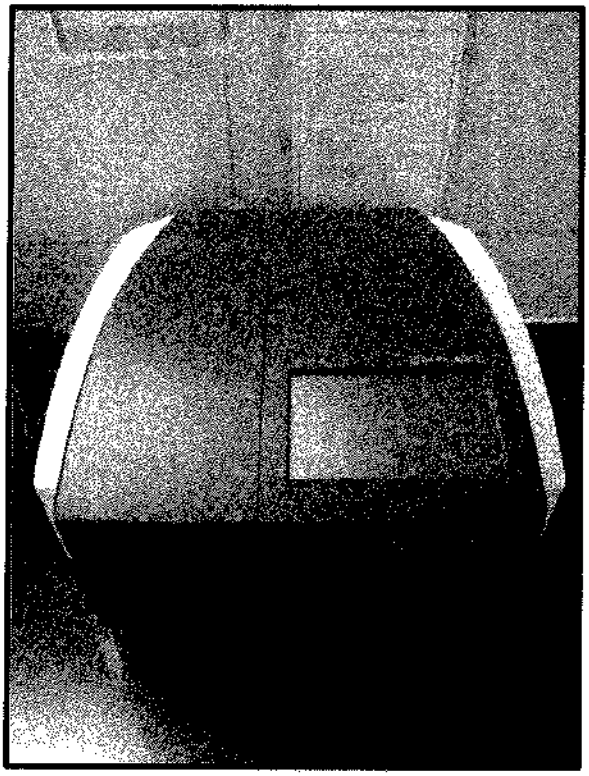


Figure 15: Equipments in the labs

b) Current practices for energy management

With billions of harmful emissions in the atmosphere, cutting back is always a good thing. In turn, conserving energy produces a higher quality of life. Reduced emissions result in cleaner air quality. In addition, it helps create a healthier planet, or at least helps sustain the resources we already have.

The institution has installed solar panels on the roof that produces renewable energy to try to meet the increased electricity demand. Currently, the institute has solar panels that contribute to 61.27% of their yearly electricity consumption.

7.3 Waste Management

Human activities create waste, and it is the way these wastes are handled, stored, collected and disposed of, which can pose risks to the environment and to public health. Solid waste can be divided into three categories: bio-degradable, non-biodegradable and hazardous waste. Bio-degradable wastes include food wastes, canteen waste, wastes from toilets etc. Non-biodegradable wastes include what is usually thrown away in homes and schools such as plastic, tins and glass bottles etc. Unscientific management of these wastes may cause harmful discharge of contaminants into soil and water supplies, and produce greenhouse gases contributing to global climate change respectively. We collected the details of solid waste generation using questionnaires and observations and tabulated them below. We also diagnosed the prevailing waste disposal policies and suggested the best way to combat the problems in the recommendations. E-waste is among the fastest growing solid waste classes and represents a serious hazard for the environment.

a) Generation of waste:

Total Waste Consumption of Dayanand College of Pharmacy is 88 kg/month

Table No. 7: Category Wise Solid Waste Generation (kg/month)

Category of Waste	Paper Waste	Plastic Waste	Biodegradable/ Wet Waste	Glass Waste	Hazardous Waste
Quantity	6.5	6	25	21	1.5

Table No.8: E-Waste Generation (kg/month)

Type of Waste	Generation Quantity	E-waste handled	E-waste treated and disposed (kg)
E-waste	28	Reused	0

b) Current practices of solid waste management

Waste management reduces the effect of waste on the environment, health, etc. It can also help reuse or recycle resources, such as; paper, cans, glass, etc. There are various types of waste management techniques that include the disposal of solid, liquid, gaseous, or hazardous substances. All the biodegradable waste along with paper waste produced in the college is sent to the microbial culture composting which then produces organic manure. This organic manure is used for trees in the campus.

Composting is a natural process that stems through microbial succession, marking the degradation and stabilization of organic matter present in waste. The use of microbial additives during composting is considered highly efficient, likely to enhance the production of different enzymes resulting in better rate of waste degradation. In lesser developed countries, composting has emerged as a vital technology to recycle the biodegradable waste while generating a useful product. Depending on the composition of the waste material, it can either directly undergo composting or homogenized prior to secondary waste treatment methods such as land filling.

The **Microbial Culture Composting** unit is situated near ladies hostel. All the wet waste from the hostels and other colleges is collected and then sent to the composting unit and the compost collected through this unit is then used as natural fertilizers for trees and plants in whole campus.

The **plastic waste** is collected and handed over to the scrap dealer or sent with municipal solid waste.

Hazardous waste is sterilized and sent for composting.

Majority of the **E-waste** is repaired and donated to schools for academic purposes. The minimal remaining e-waste is then sold to authorized scrap vendors.

Sanitary Napkin Incinerator: Incinerator uses electricity to heat the heating coil which in turn will light up the sanitary napkins when dumped into the incinerator. When the sanitary napkin burns, it is reduced to ashes and then disposed off.

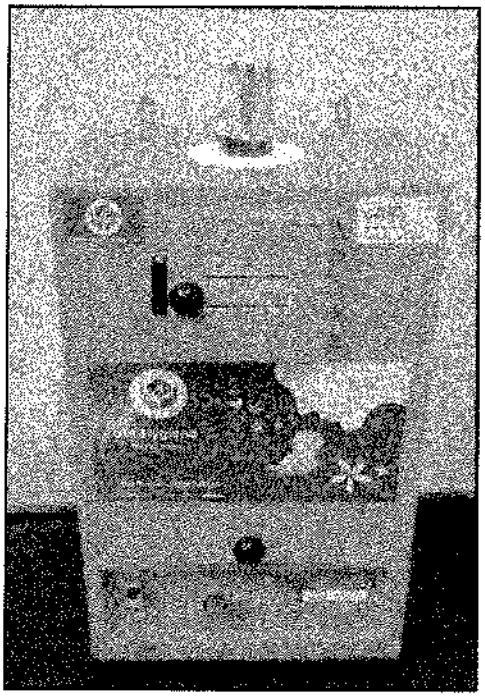


Figure 16: Sanitary Napkin Incinerator

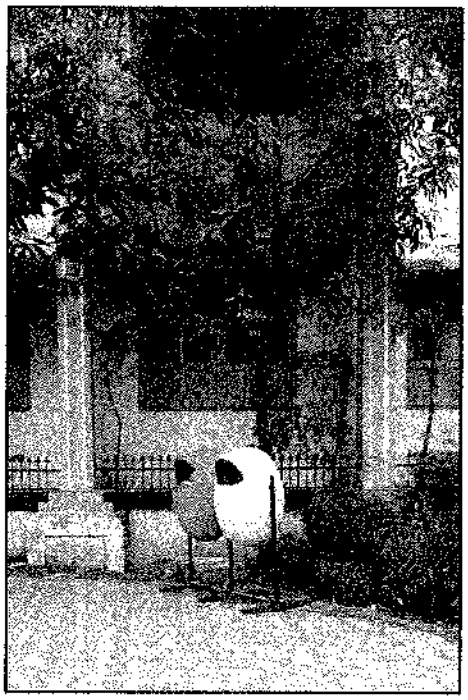


Figure 17: Waste Collection

Figure 18: Waste Segregation

Figure 19: Microbial Culture Composting

7.4 Biodiversity Conservation

The term biodiversity (from "biological diversity") refers to the variety of life on Earth at all its levels, from genes to ecosystems, and can encompass the evolutionary, ecological, and cultural processes that sustain life.

This aspect addresses all the flora and fauna of the campus. The list below has the name and quantity of trees as well as bird species.

Table No.9: Trees in the campus

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Palm (large)	*Roystonea regia*	03	26
2.	Palm (small)	*Roystonea regia*	22	
3.	Supari	*Aareca catechu*	01	
4.	Ashok	*Saruca asoca*	07	45
5.	Mahogani	*Swietenia mahagoni*	02	
6.	Sagwan	*Tectona grandis*	02	
7.	Peepal	*Ficus religiosa*	01	
8.	Gulmohar	*Delonix regia*	02	
9.	Badam	*Terminalia katappa*	03	
10.	Subabhul	*Leucaena leucocephala*	02	
11.	Limbu	*Citrus aurantifolia*	02	
12.	Tamarind	*Tamarindus indica*	01	
13.	Mango	*Mangifera indica*	01	
14.	Bamboo	*Bambusoideae*	01	
15.	Sururu	*Casuarina equisetifolia*	01	
16.	Nandurki	*Toona ciliate*	02	
17.	Nivdung	*Cacti species*	01	
18.	Takli	*Silene conoidea L*	02	
19.	Aapta	*Bauhinia racemosa*	02	

20.	Jaswand	*Hibiscus rosasinensis*	01	
21.	Ruchik	*Calotropis gigantean*	02	
22.	Adulsa	*Justicia adhatoda*	01	
23.	Chafa	*Plumeria*	02	
24.	Kektad	*Agave Americana*	02	
25.	Necha	*Acorus calamus*	03	
26.	Bogan Vel	*Bouglanvillea glabra*	01	
27.	Limbu	*Citrus x aurantifolia*	01	
28.	Buch	*Millingtonia hortensis*	02	
29.	Subabhul	*Leucaena leucocephala*	04	
30.	Gulmohar	*Delonix regia*	26	
31.	Peepal	*Ficus religiosa*	01	
32.	Ashok	*Saraca asoca*	02	
33.	Umbar	*Ficus racemosa*	01	
34.	Mahogani	*Swietenia mahagoni*	02	16
35.	Subabhul Karanji	*Leucaena leucocephala*	02	
	Karanji	*Millettia pinnata*	01	
36.	Badam	*Terminalia katappa*	03	
37.	Chafa	*Plumeria*	07	
38.	Swastik	*Tabernaemontana divaricata*	01	

Girls hostel area:

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Bakuli	*Minusops elengi*	04	98
2.	Shirish Gulabi	*Albizia Lebbeck*	10	
3.	Chafa	*Plumeria*	03	
4.	Limbu	*Citrus aurantiifolia*	02	
5.	Kadam	*Neolamarckia cadamba*	05	

6.	Sitafal	*Annona squamosa*	03
7.	Limbu	*Citrus aurantiifolia*	02
8.	Wad	*Ficus benghalensis*	01
9.	Palm	*Roystonea regia*	14
10.	Mango	*Mangifera indica*	10
11.	Jambhul	*Syzygium cumini*	02
12.	Mahogani	*Swietenia mahagoni*	02
13.	Limboni	*Limonia acidssima L.*	01
14.	Jaswand	*Hibiscus rosasinensis*	05
15.	Peepal	*Ficus religiosa*	01
16.	Parijatak	*Nyctanthes arbor-tristis*	03
17.	Christmas Tree	*Araucaria columnaris*	02
18.	Ramfal	*Annona reticulata*	01
19.	Swastik	*Tabernaemontana*	02
20.	Adulsa	*Justicia adhatoda*	01
21.	Sagwan	*Tectona grandis*	16
22.	Shevga	*Moringa oleifera*	04
23.	Dalimb	*Punica granatum*	02
24.	Peru	*Psidium guajava*	02

Arts College:

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Ramfal	*Annona reticulate*	01	23
2.	Subabhul	*Leucaena leucocephala*	03	
3.	Buch	*Millingtonia hortensis*	06	
4.	Mango	*Mangifera indica*	03	
5.	Badam	*Millettia pinnata*	03	
6.	Fan palm	*Livistona chinensis*	07	
7.	Palm	*Roystonea regia*	03	

8.	Chafa	*Plumeria*	02	
9.	Chandan	*Santalum album*	01	
10.	Ashok	*Saruca asoca*	14	
11.	Christmas Tree	*Araucaria columnaris*	02	

Commerce Jr college:

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Subabhul	*Leucaena leucocephala*	02	04
2.	Mango	*Mangifera indica*	01	
3.	Peepal	*Ficus religiosa*	01	

Main office area:

Sr .no	Common name of plant	Botanical name	Quantity	Total
1.	Subabhul	*Leucaena leucocephala*	04	18
2.	Palm	*Roystonea regia*	04	
3.	Sonmohar	*Peltophorum pterocarpum*	05	
4.	Badam	*Millettia pinnata*	03	
5.	Limbu	*Citrus aurantiifolia*	02	

Commerce College:

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Nilgiri	*Eucalyptus*	02	19
2.	Sonmohar	*Peltophorum pterocarpum*	10	
3.	Ashok	*Saruca asoca*	09	
4.	Palm	*Roystonea regia*	02	
5.	Mango	*Mangifera indica*	03	
6.	Badam	*Millettia pinnata*	03	
7.	Gulmohar	*Delonix regia*	02	

8.	Limbu	*Citrus aurantiifolia*	03	
9.	Ashok	*Saruca asoca*	16	
10.	Kamal	*Nelumbo nucifera*	01	

Music department area:

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Buch	*Millingtonia hortensis*	01	04
2.	Sonmohar	*Peltophorum pterocarpum*	03	

Meeting hall area:

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Buch	*Millingtonia hortensis*	10	96
2.	Limbu	*Citrus aurantiifolia*	01	
3.	Peepal	*Ficus religiosa*	01	
4.	Subabhul	*Leucaena leucocephala*	05	
5.	Gulmohar	*Delonix regia*	07	
6.	Bakuli	*Minusops elengi*	03	
7.	limbu	*Citrus aurantiifolia*	03	
8.	Kadam	*Neolamarckia cadamba*	03	
9.	Chinch	*Tamarindus indica*	01	
10.	Umbar	*Ficus racemosa*	02	
11.	Sonmohar	*Peltophorum pterocarpum*	04	
12.	English chinch	*Pithecellobium dulce*	01	

Canteen (behind meeting hall):

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Badam	*Millettia pinnata*	08	18

2.	Subabhul	*Leucaena leucocephala*	02	
3.	Umbar	*Ficus racemosa*	02	
4.	Peepal	*Ficus religiosa*	02	
5.	Kadam	*Neolamarckia cadamba*	03	
6.	Limbu	*Citrus aurantiifolia*	01	

Pharmacy College:

Sr. no	Common name of plant	Botanical name	Quantity	Total
1.	Ashoka	*Saruca asoca*	01	
2.	Badam	*Terminalia catapa*	06	
3.	Subabhul	*Leucaena leucocephala*	01	
4.	Mango	*Mangifera indica*	04	
5.	Palm	*Roystonea regia*	02	
6.	Peepal	*Ficus relogiosa*	02	
7.	Buch	*Millingtonia hortensis*	01	
8.	Chafa	*Plumeria*	02	
9.	Fan palm	*Livistona chinensis*	02	
10.	Bakuli	*Minussops elngi*	06	
11.	Kadam	*Neolamackia cadamba*	02	136
12.	Gulmohar	*Delonix regia*	02	
13.	Sitafal	*Annona squamosa*	01	
14.	Jaswand	*Hibiscus rosasinensis*	01	
15.	Adulsa	*Justicia adhatoda*	01	
16.	Jambhul	*Syzygium cumini*	01	
17.	Limbu	*Citrus aurantifolia*	01	
18.	Karanji	*Millettia pinnata*	01	
19.	Ghaneri	*Lantana camara linn*	01	
20.	Mahagoni	*Swietenia mahagoni*	02	

21.	Shevaga	*Moringa olifera*	02	
22.	Kadulimb	*Azadirachta indica*	04	
23.	Bor	*Ziziphus mauritiana*	01	
24.	Sonmohar	*Peltophorum pterocarpum*	01	
25.	Arjun	*Terminalia arjuna*	01	
26.	Awala	Phyllanthus emblica	01	
27.	Others		17	

Boys' hostel:

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Ashoka	*Saruca asoca*	06	18
2.	Badam	*Terminalia catapa*	03	
3.	Bakuli	*Minusops elengi*	05	
4.	Kadulimb	*Azadirachta indica*	01	
5.	Mango	*Mangifera indica*	02	
6.	Apta	*Bauhinia racemosa*	01	

Gate no 9:

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Gulmohar	*Delonix regia*	08	46
2.	Shevaga	*Moringa olifera*	03	
3.	Kadulimb	*Azadirachta indica*	01	
4.	Badam	*Terminalia catapa*	01	
5.	Subabhul	*Leucaena leucocephala*	02	
6.	English chinch	*Pithecellobium dulce*	01	
7.	Liboni	*Limonia acidssima l.*	02	
8.	Others		29	

Architecture:

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Palm	*Roystonea regia*	05	90
2.	Gulmohar	*Delonix regia*	13	
3.	Chafa	*Plumeria*	73	
4.	Mango	*Mangifera indica*	01	
5.	Kadulimb	*Azadirachta indica*	01	

Indoor stadium area:

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Naral	*Coco nucifera*	05	24
2.	Bakuli	*Minusops elengi*	15	
3.	Ashoka	*Saruca asoca*	01	
4.	Rubber	*Hevea brasiliensis*	01	
5.	Jambhul	*Syzygium cumini*	02	
6.	Ruchik	*Calotropis gigantean*	01	
7.	Shisham	*Dalbergia sissoo*	01	
8.	Saptparni	*Alstonia schoaris*	01	

Boys' hostel (back area):

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Palm	*Roystonea regia*	20	36
2.	Subabhul	*Leucaena leucocephala*	02	
3.	Bamboo	*Bambusoideae*	02	
4.	Arjun	*Terminalia arjuna*	05	
5.	Mango	*Mangifera indica*	03	
6.	Chafa	*Plumeria*	01	
7.	Papaya	*Carica*	01	
8.	Peepal	*Ficus relogiosa*	02	

Well area:

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Umbar	*Ficus racemosa*	01	11
2.	Bakuli	*Minusops elengi*	09	
3.	Nandurki	*Toona ciliate*	01	

Cricket ground:

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Bakuli	*Minusops elengi*	07	47
2.	Kadulimb	*Azadirachta indica*	03	
3.	Mahogani	*Swietenia mahagoni*	01	
4.	Shami	*Prosopis cineraria*	01	
5.	Vada	*Ficus benghalensis*	06	
6.	Peepal	*Ficus relogiosa*	06	
7.	Subabhul	*Leucaena leucocephala*	10	
8.	Mango	*Mangifera indica*	01	
9.	Others		12	

Dayanand Law College (indoor area):

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Gulmohar	*Delonix regia*	03	165
2.	Chafa	*Plumeria*	50	
3.	Ashoka	*Saruca asoca*	16	
4.	Badam	*Terminalia catapa*	03	
5.	Suru	*Casuarina equisetifolia*	08	
6.	Peru	*Psidium guajava*	01	
7.	Palm	*Roystonea regia*	29	
8.	Shevaga	*Moringa olifera*	01	
9.	Chickoo	*Manikara zapota*	01	

10.	Bel	*Aegle marmelos*	30	
11.	Rubber	*Hevea brasiliensis*	02	
12.	Mango	*Mangifera indica*	01	
13.	Anjir	*Ficus carcia*	02	
14.	Christmas Tree	*Araucaria columnaris*	01	
15.	Kadulimb	*Azadirachta indica*	10	
16.	Swastik	*Tabernaemontana divaricata*	02	

Dayanand Law College (outdoor area):

Sr. No.	Common name of plant	Botanical name	Quantity	Total
1.	Ashoka	*Saruca asoca*	07	**11**
2.	Karanji	*Millettia pinnata*	04	

Around playground:

Common name of plant	Botanical name	Quantity	Total
Vada, peepal, shirish, bakuli, subabhul, buch, gulmohar, badam, kadulimb, chafa, shevari, jambhul, chinch, chanadan, sitafal, ramfal, parijatak, etc	Infront of law building	29	**237**
	Gate no 5	67	
	Gate no 4	75	
	Infront of arts building	43	
	Law side	23	

Total of trees in Dayanand Education Society Campus are 2464

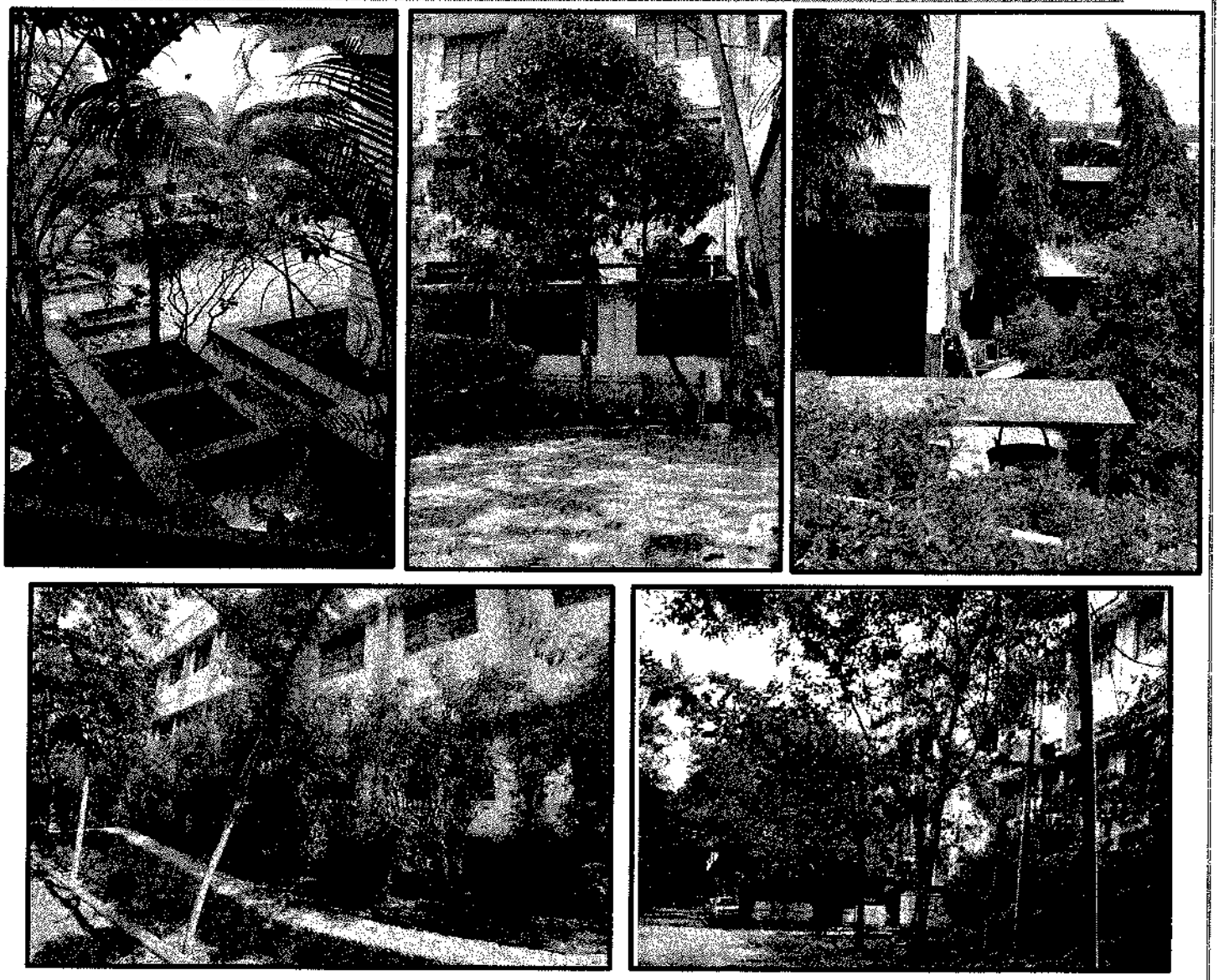
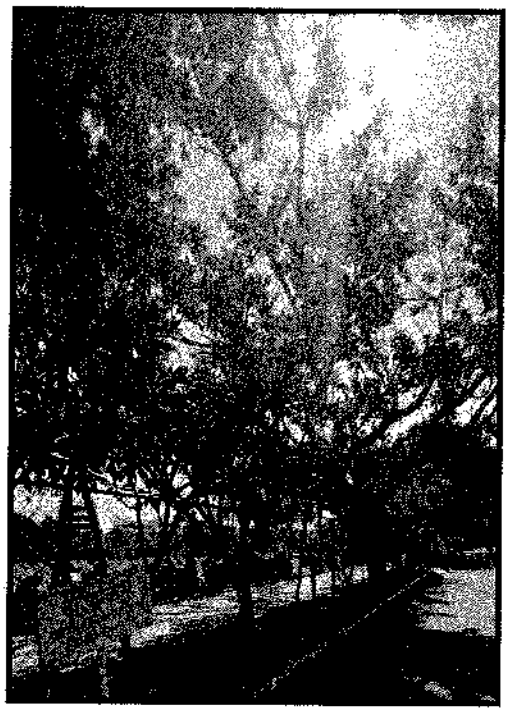


Figure 20: Trees in the campus

Current Practices for Biodiversity Conservation

Biodiversity conservation refers to the protection, preservation, and management of ecosystems and natural habitats and ensuring that they are healthy and functional, to protect and preserve species diversity and to ensure sustainable management of the species and ecosystems. They plant more and more trees every year. The campus is 40% covered with vegetation on ground. They have also hanged water feeders on the trees for birds.



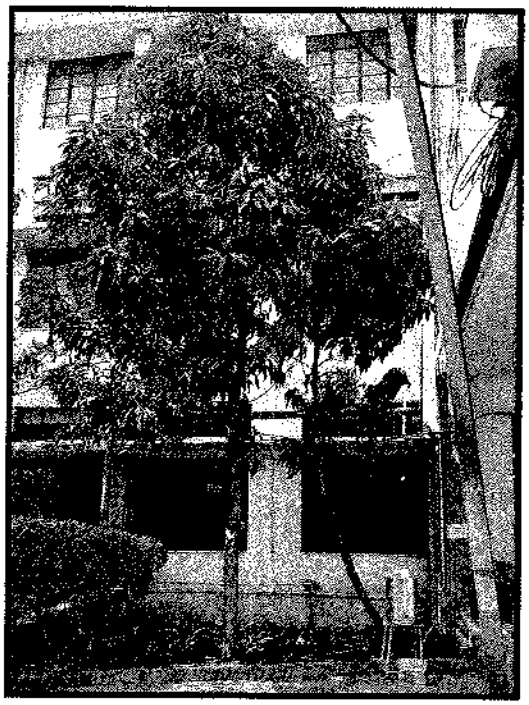


Figure 21: Vegetation around College of Pharmacy

A medicinal garden has been planted by the College of Pharmacy

Sr. No.	Common Name	Botanical Name	Family Name
1.	Aloe	*Aloe barbadensis*	**Liliaceae**
2.	Amla	*Emblica officinalis*	**Euphorbiaceae**
3.	Coriander	*Coriandrum sativum*	**Umbelliferae**
4.	Dill	*Anethum graveolens*	**Umbelliferae**
5.	Fennel	*Foeniculum vulgare*	**Apiaceae (Umbelliferae)**
6.	Garlic	*Allium sativum*	**Liliaceae**
7.	Ginger	*Zingiber officinale*	**Zingiberaceae**
8.	Mustard	*Brassica nigra*	**Cruciferae**
9.	Neem	*Azadirachta indica*	**Meliaceae**
10.	Squill	*Urginea indica*	**Liliaceae**
11.	Turmeric	*Curcuma longa*	**Zingiberaceae**
12.	Vinca	*Cathranthus roseus*	**Apocynaceae**
13.	Withania	*Withania somnifera*	**Solanaceae**
14.	Orange	*Citrus sinensis*	**Rutaceae**
15.	Guduchi	*Tinospora cordifolia*	**Menispermaceae**
16.	Carrot	*Daucus carota*	**Apiaceae**
17.	Sitaphal	*Annona squamosa*	**Annonaceae**
18.	Curry tree	*Murraya koenigii*	**Rutaceae**
19.	Mentha	*Mentha spicata*	**Lamiaceae**
20.	Drumstick tree	*Moringa oleifera*	**Moringaceae**
21.	Fenugreek	*Trigonella foenum*	**Fabaceae**
22.	Sandalwood	*Santalum album*	**Santalaceae**
23.	Bacopa	*Bacopa monnieri*	**Plantaginaceae**
24.	Kewda	*Pandanus odoratissimus*	**Pandanaceae**
25.	Mexicana	*Argemone Mexicana*	**Papaveraceae**
26.	Jambul	*Syzygium cumini*	**Myrtaceae**

27.	Acacia Arabica	*Acacia Senegal*	**Fabaceae**
28.	Tulasī	*Ocimum tenuiflorum*	**Lamiaceae**
29.	Ruchaki	*Calotropis procera*	**Apocynaceae**
30.	Rose	*Rosadomascena*	**Rosaceae**
31.	Bor	*Ziziphus mauritiana*	**Rhamnaceae**
32.	Adulsa	*Adhatoda vasica*	**Acanthaceae**
33.	Akarkara	*Anacyclus pyrethrum*	**Asteraceae**
34.	Chafa	*Frangipani*	**Apocynaceae**
35.	Lemon	*Citrus limon*	**Rutaceae**
36.	Jaswand	*Hibiscus rosa*	**Malvaceae**
37.	Peepal	*Ficus religiosa*	**Moraceae**
38.	Alu leaf	*Colocasia esculenta*	**Araceae**
39.	Kaner	*Nerium oleander*	**Apocynaceae**
40.	Durva	*Cynodon dactylon*	**Poaceae**
41.	Datura	*Datura Stramonium*	**Salanaceae**
42.	Lemon Grass	*Cymbopogon citrates*	**Poaceae**
43.	Hirda	*Terminalia Chebula*	**Combretaceae**
44.	Arjuna	*Terminalia arjuna*	**Combretaceae**
45.	Coconut	*Cocos nucifera*	**Arecaceae**
46.	Black Pepper	*Pipper nigrum*	**Piperaceae**
47.	Kadamb	*Neolamarckia cadamba*	**Rubiaceae**
48.	Ashoka	*Saraca indica*	**Fabaceae**
49.	Ajwain	*Carum copticum*	**Apiaceae**
50.	Gokharu	*Tribulus terrestris*	**Zygophyllaceae**
51.	Carrot	*Daucus carota*	**Apiaceae**

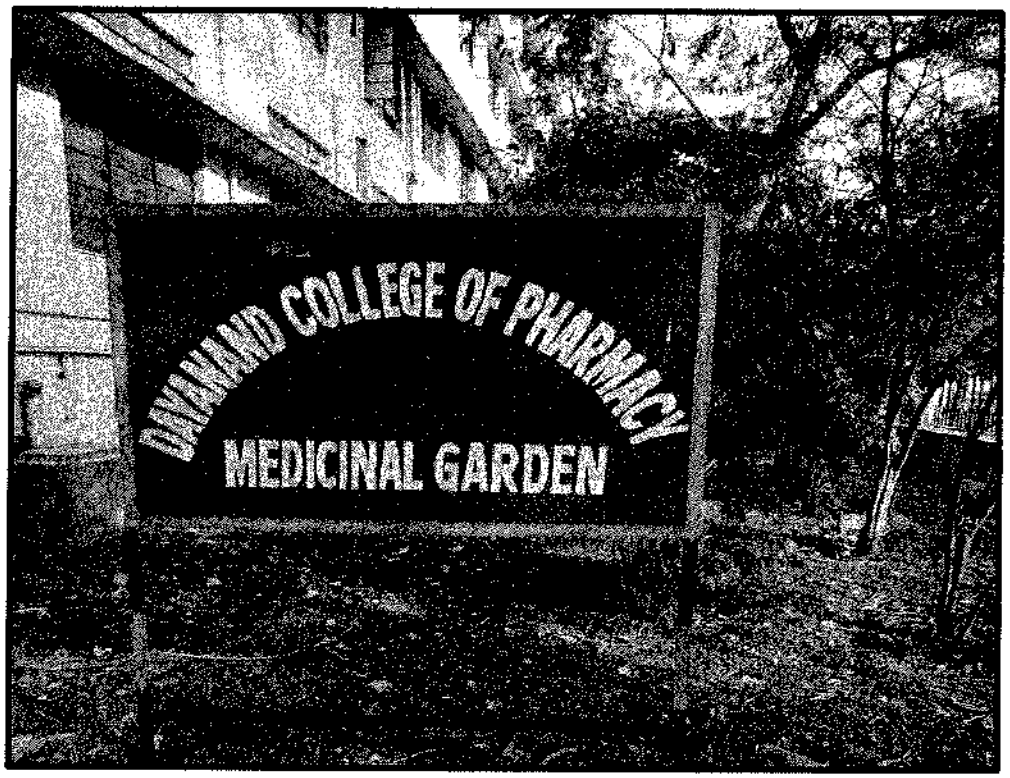
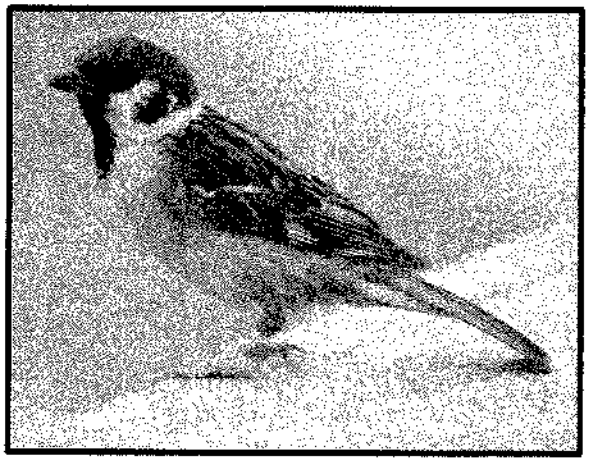


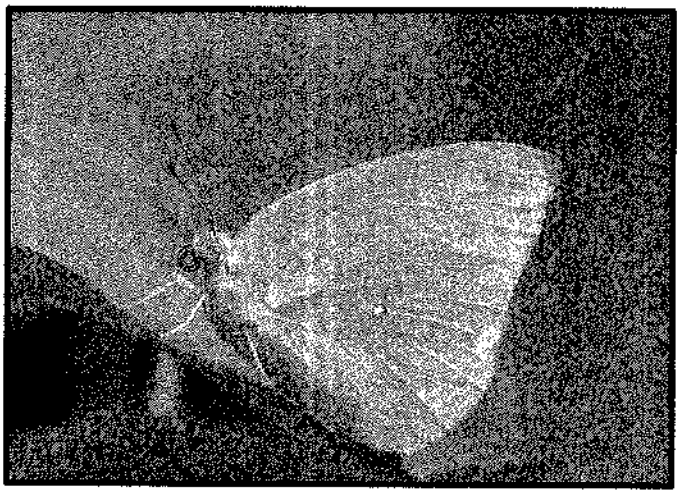
Figure 22: Medicinal Garden of the college

Animals in the college:

Table No 8: Fauna in the Campus

Sr. No.	Specie Name	Scientific Name
1.	House Crow	*Corvus splendens*
2.	House Sparrow	*Passer domesticus*
3.	Domestic Pegion	*Columba livia domestica*
4.	Crow Pheasant	*Centropus sinensis*
5.	Indian Palm Squirrel	*Funambulus palmarum*
6.	Common emigrant	*Catopsilia pomona*
7.	Tawny coster	*Acraea terpsicore*
8.	Common crow	*Euploea core*





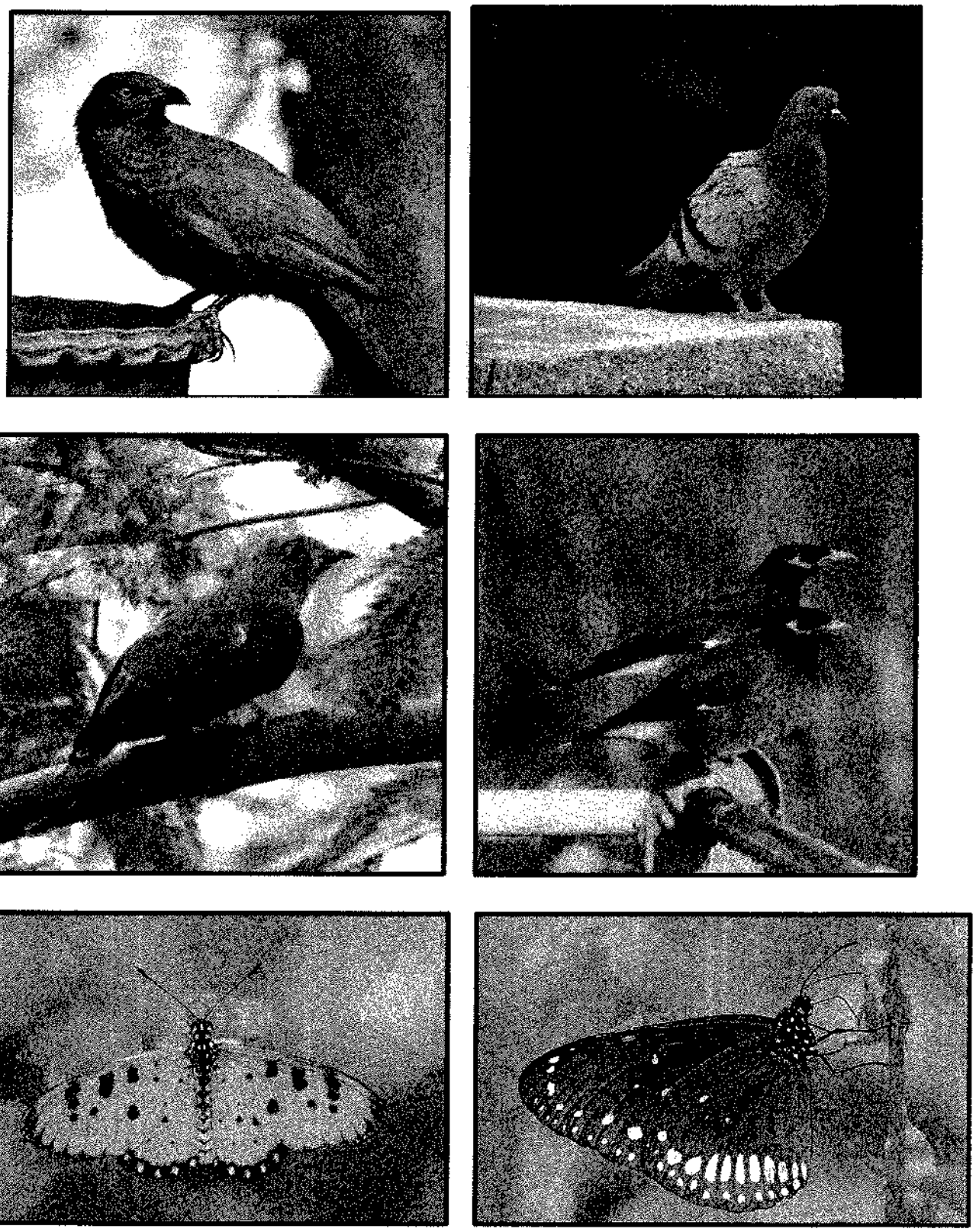


Figure 23: Fauna in the Campus

7.5 Air Quality

Air quality of an academic institute is very important for health of students, faculty and staff of College. The air pollution sources in the campus are wind storm, pollen grains, natural dust, vehicular emissions, generators, laboratory fumes, etc. Monitoring helps in assessing the level of pollution in relation to the ambient air quality standards. Standards are a regulatory measure to set the target for pollution reduction and achieve clean air. The air pollutants monitored on regular basis are Sulphur dioxide (SO_2), Oxides of Nitrogen as NOx, Suspended Particulate Matter (SPM) and Repairable Suspended Particulate Matter (RSPM) by High Volume Sample (HVS) as well as records of temperature, relative humidity are also been recorded for comparison. All the air quality parameters are within the standard limits of MPCB except SPM, suggesting ambient air quality of the campus is moderate and might cause minor breathing discomfort to sensitive people. The data is collected for Ambient Air Quality Monitoring under the program of NAMP by Maharashtra Pollution Control Board (MPCB).

Table 11: Air Quality Monitoring

	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	RSPM ($\mu g/m^3$)	SPM ($\mu g/m^3$)
Standard	80	80	100	100
Average for 2019-2020	5.5	20.7	90.8	191.6

The above table shows that Sulphur dioxide (SO_2), Oxides of Nitrogen as NOx, and Repairable Suspended Particulate Matter (RSPM) are within limits; however, Suspended Particulate Matter (SPM) is above limits.

7.6 Carbon Footprint

A **carbon footprint (CF)** is the total amount of **greenhouse gases** (including carbon dioxide and methane) that are generated by our actions.

A carbon footprint is an estimate of the climate change impact of activity – such as making a product, living a lifestyle or running a company.

There are many existing and evolving standards for calculating carbon footprints but in truth no footprint is precise. For more complicated activities these uncertainties are greatly multiplied.

a) Carbon Emissions:

Table No. 12: List of carbon emissions

Scope	Sources	Description
Scope 1 (Direct)	Equipments usage	DG set
Scope 2 (Indirect)	Electricity Use	Dayanand Education Society, Latur uses electricity to light and run appliances at its facilities.
Scope 3 (Indirect)	Employee commuting And raw materials transportation	Employees commute from their residences to the college and material transportations
	Wastewater treatment	College generates total 30 m^3 of wastewater

Emission Data and Calculations:

- **Scope 1** – All Direct Emissions from the activities of an institution or under their control. Including fuel combustion on site such as gas, etc.

Table No.13: Scope 1 Emissions

Type of Fuel	Quantity	Emission Factor	$KgCO_2$/month
Fuel used for DG set	5 lit/month	2.653	13.265
LPG	9.5 Kg	2.983	28.3385
TOTAL SCOPE 1 EMISSIONS			**41.6035 Kg CO_2/month**

- **Scope 2 –** Indirect Emissions from electricity purchased and used by the institution. Emissions are created during the production of the energy and eventually used by the organisation.

Emissions from Purchased electricity:

Table No. 14: Indirect Emissions /scope 2 emissions

Type of Emission	Quantity	Emission Factor	Kg CO_2
Emissions from Purchased electricity	4717 KWH/month	0.97	**4575.5 Kg CO_2/month**
Renewable energy generation	2890 KWH/month	0.97	**2803.3 Kg CO_2/month**
TOTAL SCOPE 2 EMISSIONS			**4575.5 Kg CO_2/month**

- **Scope 3 – All Other Indirect Emissions** from activities of the institution, occurring from sources that they do not own or control.

A. **Employee Transportation:** Increase in student intake can lead to increased greenhouse gas (GHG) pollution caused by the resulting growth in vehicular traffic, energy use, and other activities. This unit seeks to identify the impact on global climate change through its emissions of greenhouse gases (GHGs), notably carbon dioxide (CO2). Transportation is the fastest growing major contributor to global climate change, accounting for 23% of energy-related carbon dioxide (CO2) emissions.

Table No. 15: Fuel Consumption through staff Transportation

Mode of transportation	Daily Count	Travelling distance (km/Vehicle)	Total Km	Emission Factor	KgCO_2
2 wheeler (teachers)	40	10	400	0.0319	12.76
4 Wheeler (Cars)	2	10	20	0.13	2.6
Public Transport	6	20	120	0.01516	1.8192
TOTAL					**17.179 Kg CO_2/day**
					515.376 Kg CO_2/month

Table No. 16: Fuel Consumption through students Transportation

Mode of transportation	Daily Count	Travelling distance (km/Vehicle)	Total Km	Emission Factor	$KgCO_2$
2 wheeler	136	10	1360	0.0319	43.38
Public Transport	87	20	1740	0.01516	26.378
TOTAL					69.758 $KgCO_2$/day
					2092.74 Kg CO_2/month

B. Waste Water Generation:

Table No. 17: Waste Water Generation

Wastewater generated	Emission Factor	Total Kg CO_2
11500 lit/day	0.21	2415 Kg CO_2/day
Total		72450 Kg CO_2/month

C. Paper consumption:

Table No.18: Paper consumption

Paper consumption	Emission factor	Kg CO_2
6.5 kg/ month	2.42	15.73 Kg CO_2/month

D. Stationary goods:

Table No. 19: Stationary goods

Stationary goods	Emission factor	Kgco2
6 kg/ month	2.4	14.4 Kg CO_2/month

E. Solid Waste Generation:

Table No. 20: Dry Solid Waste Generation

Wet waste generated	Emission factor	Total Kg CO_2
25 kg/month	0.21	5.25 Kg CO_2/month

- **Total emissions throughout a year**

Table No.21: Total emissions throughout an year

Reporting Year	Total Emissions (Kg CO_2/month)	Total Emissions (Kg CO_2 /year)
2020	79710.6	956527.2

Carbon Sequestration

Table No.22: Carbon Sequestration

Sr. No.	Common name of plant	Botanical name	Quantity	Kg CO_2 sequestration/year	Total Kg CO_2 sequestration
1.	Ashoka	*Saruca asoca*	07	1675.36	11727.52
2.	Badam	*Terminalia catapa*	06	419.22	2515.32
3.	Subabhul	*Leucaena leucocephala*	02	3976	7952
4.	Mango	*Mangifera indica*	04	2012.30	8049.2
5.	Palm	*Roystonea regia*	02	925.0	1850
6.	Peepal	*Ficus relogiosa*	02	1630	3260
7.	Buch	*Millingtonia hortensis*	02	142	284
8.	Chafa	*Plumeria*	07	50	350
9.	Fan palm	*Livistona chinensis*	02	14	28
10.	Bakuli	*Minussops elngi*	06	3	18
11.	Kadam	*Neolamackia cadamba*	02	50	100
12.	Gulmohar	*Delonix regia*	04	5705.37	22821.48
13.	Sitafal	*Annona squamosa*	01	16	16
14.	Jaswand	*Hibiscus rosasinensis*	06	3	18
15.	Adulsa	*Justicia adhatoda*	03	25	75
16.	Jambhul	*Syzygium cumini*	06	299	1794
17.	Limbu	*Citrus aurantifolia*	01	835.87	835.87
18.	Karanji	*Millettia pinnata*	01	217.20	217.20

19.	Ghaneri	*Lantana camara linn*	01	3	3
20.	Mahagoni	*Swietenia mahagoni*	02	803.80	1607.6
21.	Shevaga	*Moringa olifera*	02	37	74
22.	Kadulimb	*Azadirachta indica*	04	517.51	2070.04
23.	Bor	*Ziziphus mauritiana*	01	280	280
24.	Sonmohar	*Peltophorum pterocarpum*	01	145	145
25.	Arjun	*Terminalia arjuna*	01	10	10
26.	Awala	Phyllanthus emblica	01	671.38	671.38
				Total	**66772.61**

- **Total carbon Emissions: 956527.2 Kg CO_2/year**
- **Carbon Sequestration: 66772.61 Kg CO_2/year**
- **Avoided Emissions: 2803.3 Kg CO_2/year**
- **Percentage of reduced carbon emissions: 7.27%**

b) Carbon Emissions Management:

Global warming presents many environmental dangers, but as individuals, we pay the costs of climate change out of our own pockets. When we lower our individual carbon footprints – by reducing our consumption, using clean energy, or offsetting our emissions, we're investing in our long-term financial security.

For reducing Carbon Footprint of the college, all the staff as well as students observe **'No Vehicle Day'** on every Saturday.

c) Mitigatory measures:

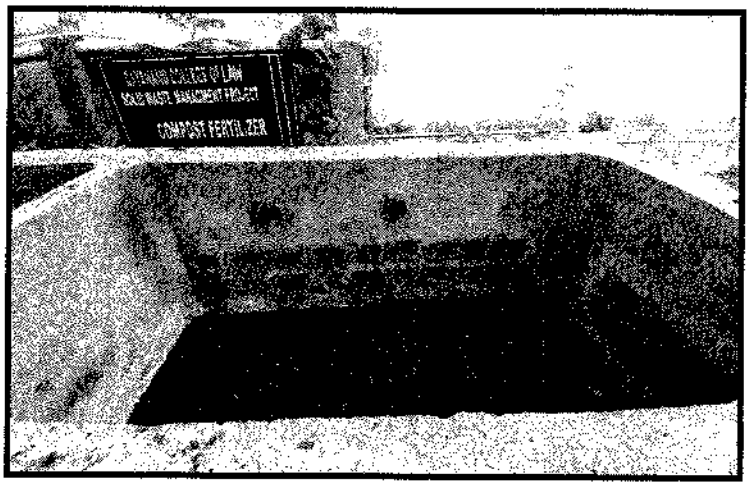
1. Make sure most teachers and students opt for public transport instead of using personal vehicle.

2. Use as much renewable sources of energy as you can.

3. Increase the solar energy consumption of overall college.

8.0 Innovative Strides

- The campus has hanged **water feeders** for birds on every tree
- The campus has started **Microbial Culture Composting** to convert the solid waste into manure which is given to the trees for better fertilization of the soil.
- The campus has initiated the successful **No Vehicle Day On Saturday Program** to reduce the pollution caused by the transportation The campus has distributed **Mask And Sanitizer** in whole latur city worth Rs. 8 lakhs
- The campus has installed Automatic Water sprinklers in cricket stadium



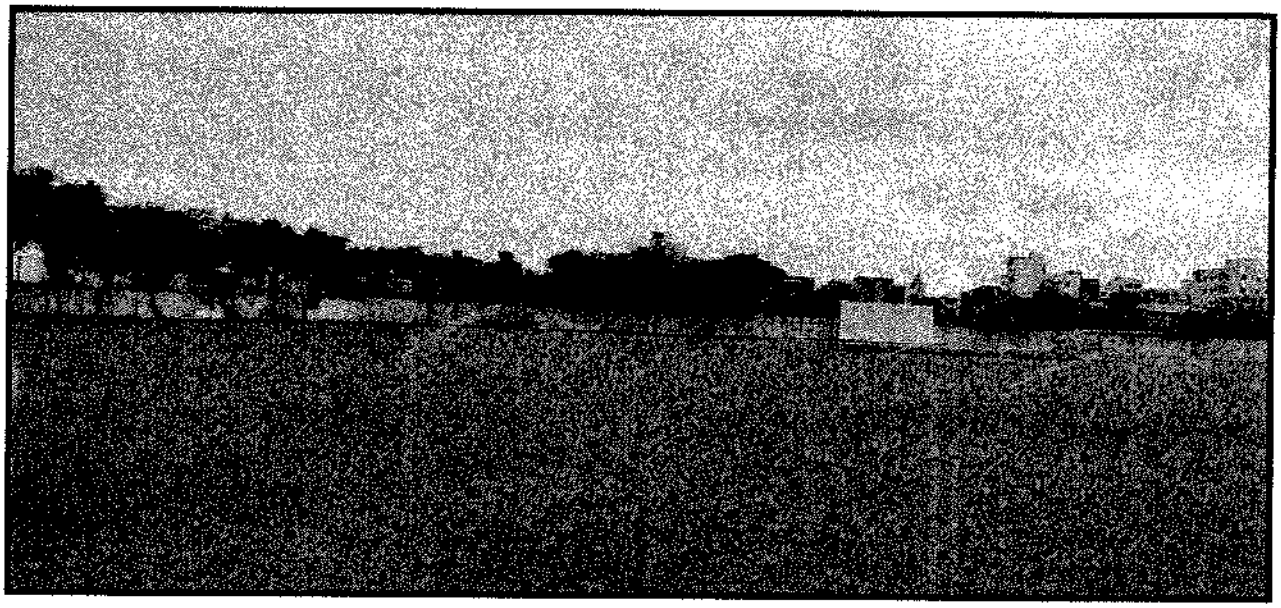


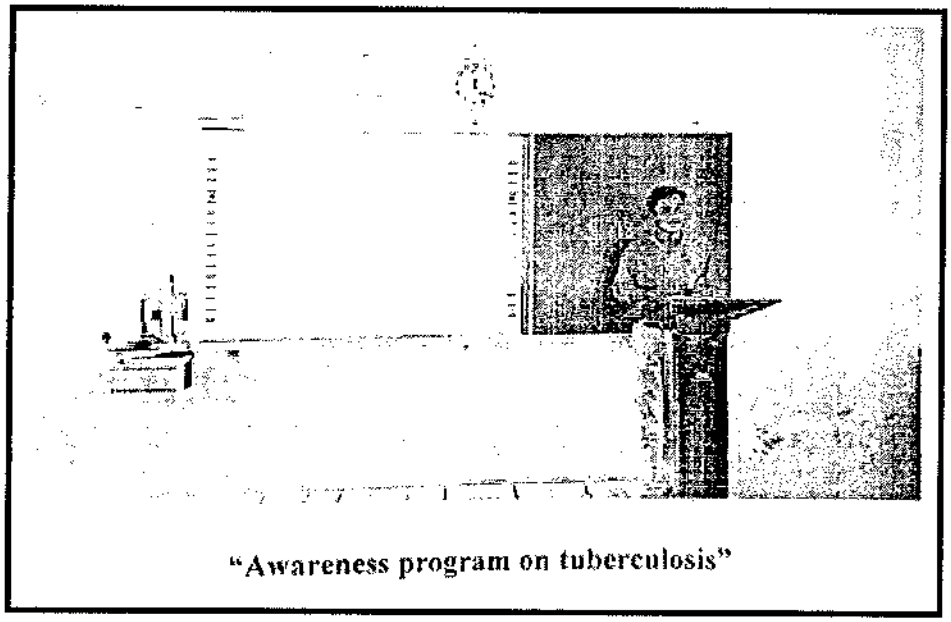
Figure 24: Innovations by the Campus

- **Tree Plantation** Program was organized by NSS at Venkatesh Residency, Latur. They planted 100 trees of different species

"Tree Plantation Drive"

Figure 25: Tree Plantation by NSS

- An **awareness program on tuberculosis** was conducted where its treatment, facilities and its cure were explained



"Awareness program on tuberculosis"

Figure 26: Awareness program on tuberculosis

9.0 Facilities Given by the Campus:

Cricket stadium:

Figure 29: Cricket stadium

Separate gyms for girls and boys:

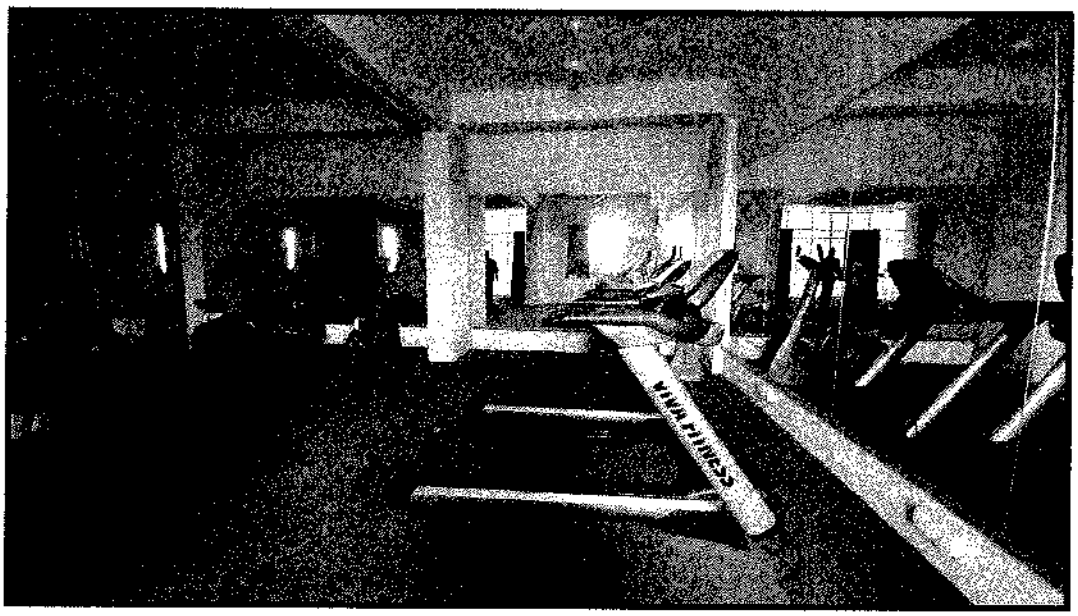


Figure 30: Separate gyms for girls and boys

Badminton court:

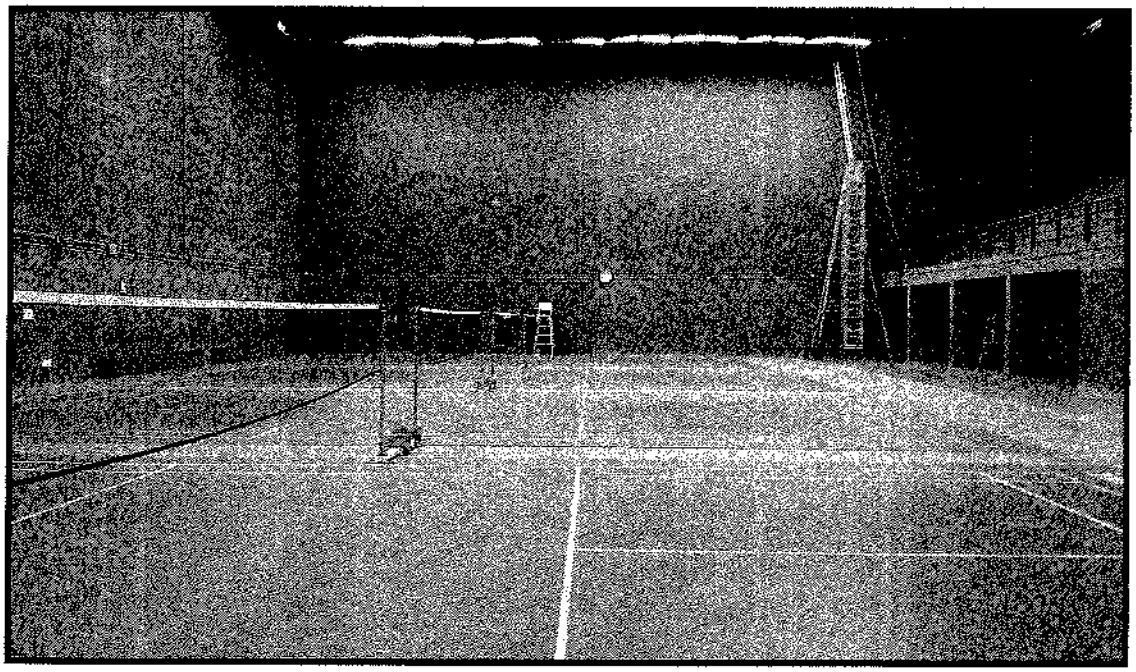


Figure 31: Badminton court

Auditorium:

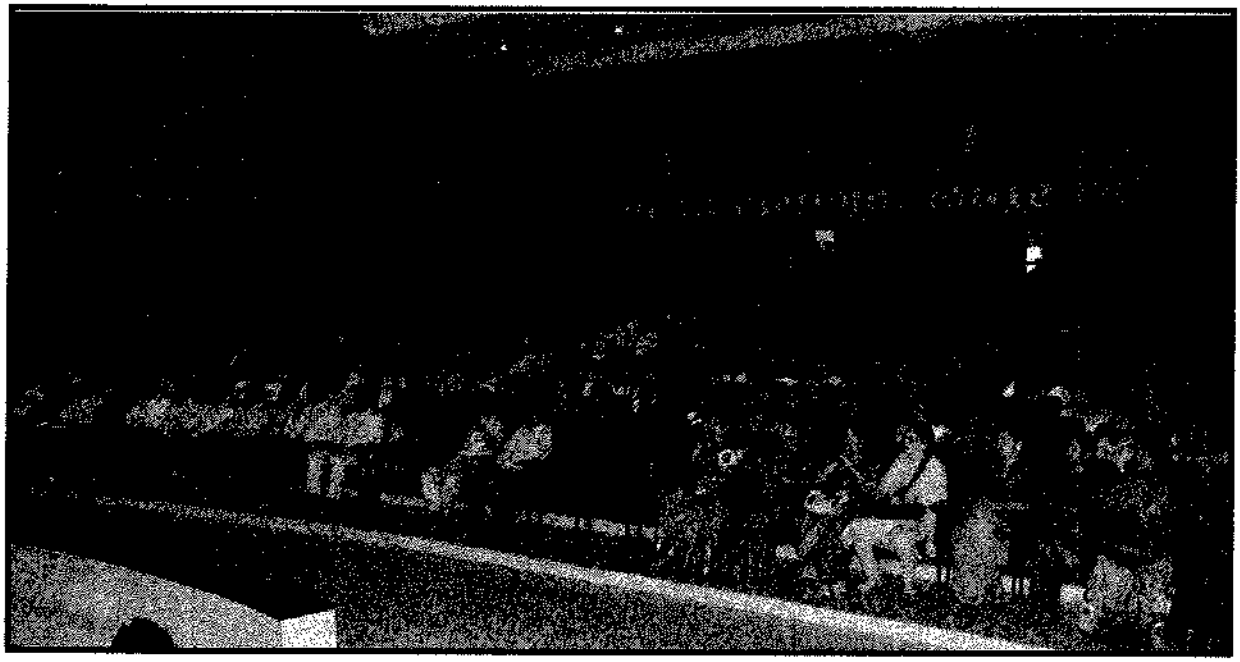


Figure 32: Auditorium

10.0 Recommendations:

1. Water Management:

- Add aerators/regulators to taps to save water
- Pipes, overhead tanks and plumbing system should be maintained properly to reduce leakages and wastages of water
- Install water meters to measure water consumption regularly
- Set up college's own water recycling unit/STP where the recycled water can be used for gardening in college and hostels
- Perform water, energy and waste management audits frequently
- Non-teaching staff or peons in the concerned section should take responsibility of monitoring the overflow of water tanks
- Regularly do the water check of the treated water from the STP and drinking water

2. Energy:

- College has many areas where lighting is not required at all times. Installing sensor based lighting in such areas can generate massive rewards. This is one of the easiest ways to save energy at college.
- Replacing old computers and instruments with ones having energy efficiency certifications is the easiest way to conserve energy at the College.
- A huge amount of energy is wasted because no one really cares about switching off the fans and lights when not required. Hence, planning workshops on energy conservation to educate students, faculty and staff can generate huge results.
- Establish a purchase policy that is energy saving and eco-friendly
- Replace all incandescent and CFL lamps with LED lights
- The college needs to arrange the energy conservation program for the purpose of awareness of fuel energy conservation and motivation of students for use of non conventional energy devices.
- College needs to use alternative sources instead of use of LPG (Non conventional sources) for laboratory and other sources.

11.0 Conclusions

Green Audit is the most efficient way to identify the strength and weakness of environmental sustainable practices and to find a way to solve problems. Green Audit is one kind of a professional approach towards a responsible way in utilizing economic, financial, social and environmental resources. Green audit can "add value" to the management approaches being taken by the college and is a way of identifying, evaluating and managing environmental risks (known and unknown). A lot of recommendations provided by us in the Green and Environmental Report 2018-2019 have been incorporated by the college. There is scope for further improvement, particularly in relation to waste, energy and water management. The college in recent years considers the environmental impacts of most of its actions and makes a concerted effort to act in an environmentally responsible manner. Even though the college does perform fairly well, the recommendations in this report highlight many ways in which the college can work to improve its actions and become a more sustainable institution.

Our Team

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