

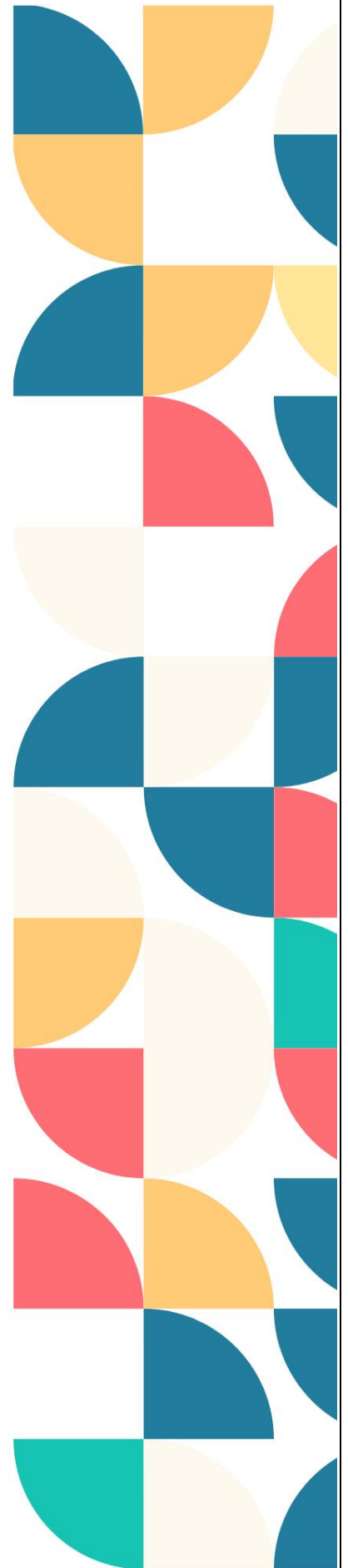


**Agnihotri College of
Pharmacy.**
Wardha

AUDIT REPORT 2018-19



**ENVIRONMENTAL & CIVIL
ENGINEERING SOLUTIONS**
ISO 9001: 2015, IEC 17025: 2017



Editorial

In the Era of global warming and climate change every citizen has to reduce their own carbon foot prints to tackle with the adverse impacts of climate change. A green audit of any academic institution reveals ways in which we can reduce energy consumption, water use and reduction in emission of carbon dioxide in the environment. It is a process to look into and ask ourselves whether we are also contributing to the degradation of the environment and if so, in what manner and how we can minimize this contribution and bring down to zero and preserve our environment for future generation.

Agnihotri College of Pharmacy, Wardha administration has already taken a step towards the green approach and conducted green audit of campus in the year 2018-2019. As an outcome of this institute has taken green steps to reduce its carbon foot prints by several means in campus viz. sustainable fittings, tree plantation and green computing in the administration and examination. The responsibility of carrying out the scientific green audit was given to Environmental and Civil Engineering Solutions. The organization has followed the rules and regulation of Ministry of Environment and Forest, Govt. of India and Central Pollution Control Board, New Delhi.

During the preparation of the Audit Report Hon. Principal, Dean Academics and IQAC encouraged us with their full support and the audit team wants to mention a warm vote of thanks towards them.



Nikhil N. Kamble
(C.E.O and Head)

**Environmental and Civil
Engineering Solutions**



ACKNOWLEDGEMENT

We express our gratitude for calling upon us for this audit, mainly the Principal and all other staff members, who were ever helpful and supported us with all the inputs needed for this audit. We thank all the teaching, non-teaching and students for helping us in conducting this audit.

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Introduction:

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

Need of audit:

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

Goals of audit:

Institute has conducted a audit with specific goals as:

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

Objectives of Audit:

1. To examine the current practices which can impact on environment such as of resource utilization, waste management etc.
2. To identify and analyse significant environmental issues.
3. Setup goal, vision and mission for Green practices in campus.
4. Establish and implement Environmental Management in various departments.
5. Continuous assessment for betterment in performance in green practices and its evaluation.
6. To prepare an Environmental Statement Report on green practices followed by different departments, support services and administration building.

Benefits of Green Audit to an Educational Institute:

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

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

Overview of Institute:

Agnihotri College of Pharmacy, Wardha was established in the year of 2001. Institute has huge area, infrastructure and been serving the mankind in the field Science and technology.



Agnihotri college of Pharmacy is fully dedicated to profession of Pharmacy and to mankind. The college has adequate infrastructure as per A.I.C.T.E. and P. C. I. norms. The various laboratories in the college are well equipped with latest equipment's required to provide the best hands on training to each and every budding pharmacist. Besides, the college has additional facilities such as pilot, sophisticated instrument laboratories, computer laboratories with internet facilities where the students gain practical exposure and a realistic approach to become a full-fledged pharmacist and become acquainted with latest developments in pharmaceutical field. Also, the college owns a Medicinal Plants garden with a diverse variety of medicinal plants in it. The college has an inbuilt Animal House with standards as per guidelines of Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA) and which works in accordance with Institutional Animal Ethics Committee (IAEC). The college library has wide range of books, periodicals, national and international journals, reference books and educational software & newspapers to fulfil the academic needs of the students. For students, library also provides book bank facility. The Institute emphasizes on practical and industrial training and organizes academic tours for students of their respective disciplines in order to enhance their learning through practical

experience The campus is located just 1.5 km from Wardha main railway station as well as from bus stand and around 4 km from Sevagram railway station.

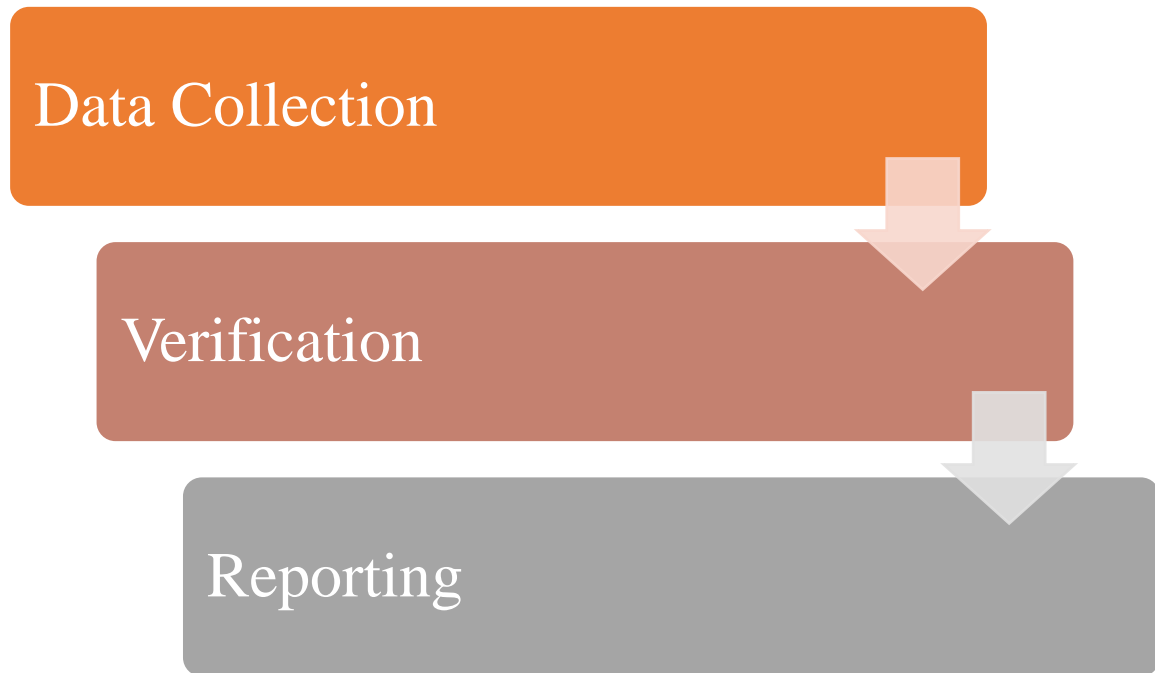
Vision of the institute:

To become a creative educational centre where innovations become a tool so as to build a budding Pharmacist

Mission of the institute:

To provide a comprehensive and progressive education that prepares pharmacists to assume an active role in providing skilled, ethical and compassionate patient care that improves the health and quality of life.

Methodology:



Audits to be carried out:

- Green and carbon footprint audit
- Energy audit
- Environmental audit
 - Water audit
 - Wastewater audit



GREEN AUDIT

Green and Carbon footprint audit:

Green Audit is the most efficient ecological tool to solve such environmental problems. It is a process of regular identification, quantification, documenting, reporting and monitoring of environmentally important components in a specified area. Through this process the regular environmental activities are monitored within and outside of the concerned sites which have direct and indirect impact on surroundings.

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

Carbon is the basis of life on mother Earth. It is incorporated into the plants through photosynthesis, consumed by animal species through the food, presents in the form of carbon dioxide (CO₂) the atmosphere, locked into the rocks as limestone and compressed into the different fossil fuels such as coal and oil. As CO₂ level in the atmosphere continue to increase, most climate designs or project that the oceans of the world and trees will keep soaking up more than half CO₂.

The plants on land and in the sea, taken up carbon by over many years increased the percentage discharged during decay, and this increased carbon became locked away as fossil fuels beneath the surface of the planet. The starting of the 21st century brought growing concern about global warming, climate change, food security, poverty and population growth.

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

Green Cover at ACOP:

ACOP has got a huge green cover and has almost 6 species of vegetation inside the campus. The institute has huge campus and most of this is covered by green area. Institute has huge plantations along with variation in species Greenery is maintained well by the institute.



Figure 0-1 ACOP, Campus

ACOP has taken huge efforts to develop its green cover. In the vicinity of the institute there is huge vegetation along the road side and around the campus. The below table shows different species of trees available in the campus and vicinity.

Species	Count
Neem	4
Pimpal	2

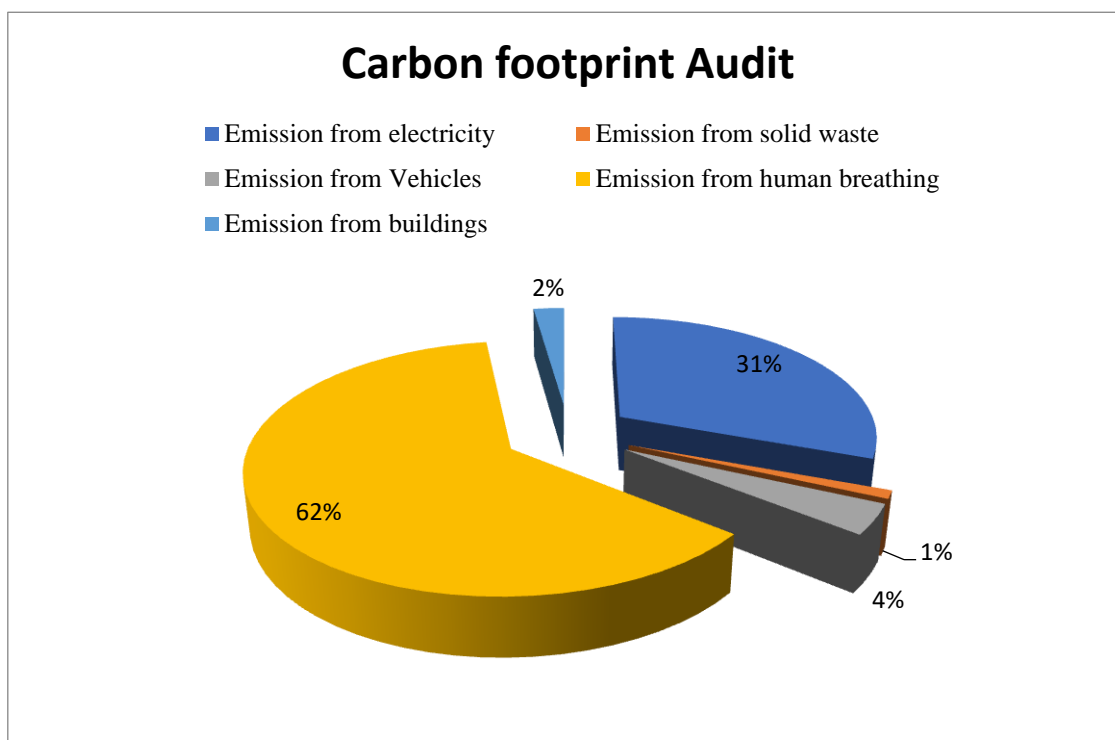
Mostly there are trees of Neem, and Pimpal. Due to this the institute has high carbon sequestration values. Considering the vicinity some dry plants were observed to approximately about 2. Plants absorb sunlight, 50% is absorbed and 30% reflected so this helps to create a cooler and more pleasant climate through a 3°C temperature reduction in the vicinity. This has also led to an increase in biodiversity as more than 7 species of birds were observed.

Some off the common birds were viz. Sparrow, wild parrots, little stint, black kite and crow etc.

Carbon Footprint Audit:

ACOP has estimated its carbon footprint by factor methodology. Various factors were used to estimate the carbon emissions from Consumption of electricity, generation of solid waste, use of vehicles in campus, carbon emissions due to human breathing and emissions from buildings. At last they have also calculated Carbon sequesterial value i.e. carbon that is absorbed by the plants.

Sr. No.	Section	Emission
1	Emission from electricity	27069.02 kg CO ₂ eq./year.
2	Emission from solid waste	4323.50 kg CO ₂ eq. per year.
3	Emission from Vehicles	19663.40 kg CO ₂ eq. per year.
4	Emission from human breathing	31.30 tons of CO ₂ eq. per year.
5	Emission from buildings	2019.99 kg CO ₂ eq. per year.
6	Carbon sequesterial	111 kg CO ₂ eq. per year.



Hence as per the calculation the carbon emission for electricity is 27069.20 kg CO₂ eq./year. Secondly considering emissions from human breathing, the institute has total 313 students and staff. The staff's works for about averagely 6 hours a day in the institute and the students are present for 5 hours averagely daily. Vehicles emit significant amount of gases in

environment and ACOP has various parking sections in the campus. It was found that averagely 684 vehicles entered the institute daily and travel about 550 m of distance from the gate. Cars also enter the institute and as per observation 13 cars are observed daily. Hence the overall the institute emits 19663.40 Kg CO₂ eq. per year.

Solid waste is very important as it emits significant amount of carbon through it. ACOP has a good solid waste management system. Hence the institute develops about 5000 kg of waste daily in both the form of wet and dry. Hence the emission is about 4323.50 CO₂ eq. per year. Buildings play an important role in carbon contribution. During the construction operation and use phase they emit significant amount of carbon. Hence considering total built-up area the carbon emissions could be evaluated. After the estimation the total built-up area observed was approximately about 10099.95 sq. ft and the carbon emission were 2019.99 kg CO₂ eq. per year. Carbon sequesterial in important as it is the carbon absorbed by the trees. ACOP campus has 8 fully grown trees in the campus; hence the sequesterial value is about 111 kg CO₂ eq. per year.



SUSTAINABLE PRACTICES

ACOP follows sustainable practices in the section of water, energy and waste management.

LED Tubes



Open well water system



RO Water system



Septic tanks



Fire Extinguisher



Rain Water harvesting system:





ENVIRONMENT AUDIT

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. 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. An EMS meeting the requirements of ISO 14001:2004 is a management tool enabling an organization of any size or type to:

- Identify and control the environmental impact of its activities, products or services;
- Improve its environmental performance continually, and
- Implement a systematic approach to setting environmental objectives and targets, to achieving these and to demonstrating that they have been achieved.

The audit examines the potential hazards or risks posed by the institutes. Areas examined may include environmental policies and procedures, energy use practices, recycling, waste, conservation, and pollution. Then, the institute can use the results to determine what changes need to be made for compliance. In a broad sense, environmental auditing aims to help protect the environment and minimize the risks of business activities to the environment and human safety and health.

Water Audit and wastewater audit:

Water auditing is a method of quantifying water flows and quality in systems, with a view to reducing water usage and often saving money on otherwise unnecessary water use. Water audit is an effective management tool for minimizing losses, optimizing various uses and thus enabling considerable conservation of water. Water audits trace water use from its point of entry into the facility/system to its discharge into the sewer/river/canal etc. Wastewater audit deals with effective management of wastewater in the system. It deals with proper generation, management, treatment, transfer and disposal of wastewater.

ACOP has carried out its water and wastewater audit and has suggested many more ways for water conservation, reuse and recycle. The detail water and waste water report is mentioned below.

Water Audit report:

Water audit for the “ACOP” was carried out. The purpose of the water audit is to provide a thorough understanding of the water uses by identifying and measuring all water using fixtures, appliances, and practices in order to recommend potential water saving efficiencies.

PRIMARY DATA

Sr. No.	Title	Information
1	Name of Institute	Agnihotri College of Pharmacy
2	Address	Wardha 442001
3	Name of company under which water audit is carried out	Environmental and Civil Engineering Solutions, Sangli
4	Number of floors	G + 3 (Variable)
5	Category of building	Educational Institute
6	Nearest ESR location	NA
7	Water supply hours	NA
8	Water meter present	No

POPULATION DETAILS

Title	Information
Fixed population (Working staff and Students)	Gents: 152
	Ladies: 161
Variable population (Visiting persons)	Gents: 24
	Ladies: 33

SOURCE INFORMATION

Title	Information
Sources of water	Open well
Connection details	1” PVC pipe inlet and 1” outlet distribution pipe

STORAGE DETAILS

Title	Information
Overhead tank type	PVC tank
Location	On terrace
Number of tanks	2 X 2,000 lit PVC 1 X 1,000 lit PVC
Motor connection details	5 Hp for Open well 3 Hp for Ground water tank
Pumping period	4 hours daily
Underground sump	Yes
Capacity of underground sump	15000 Lit RCC

WATER USAGE

Toilet	Number of users	Water consumption
Gents toilet	152 users	152 X 15 lit = 2280
Washbasin	313 users	313 X 0.75 lit = 234
Ladies toilet	161 users	161 X 18 lit = 2897
Toilet cleaning	600 liters	600 liters
Floor cleaning	1500 liters	1500 liters
Gardening	1500 liters	1500 liters
Laboratories	2500 liters	2500 liters
Total		11,512 lit

SCHEDULE OF TOILETS AND WASHROOMS:

Number of Students and staff toilets in each floor

Sr. No.	Toilet	Boys	Girls	Staff
1	Ground floor	0	0	0
2	First floor	1	1	0
3	Second floor	1	1	0
4	Third floor	0	0	0

WATER USED FOR DRINKING

There are coolers cum water purifiers present in the institute. Sample assessment for 3 months was done and average values are presented below for each section.

Potable water assessment:

Open well assessment

Sr. No.	Test	Results	Limit
1	pH	7.7	6.5-8.5
2	TDS	1321	-
3	E.C	2684	-
4	Hardness	141	200
5	Chlorides	105	200
6	MPN	Ab	1.0
7	Odor and Color	Ab	-

Main RO plant

Sr. No.	Test	Results	Limit
1	pH	6.8-7.6	6.5-8.5
2	TDS	133	-
3	E.C	141	-
4	Hardness	115	200
5	Chlorides	177	200
6	MPN	Ab	1.0
7	Odor and Color	Ab	-

Testing specifications:

Test	ISO Code
pH	ISO 3025:11 (1993)
TDS	ISO 3025: 16 (1984)
E.C	ISO 3025: 14 (1984)
Total Hardness	ISO 1055: 12 (2012)
Chloride	ISO 3025: 40 (1991)
MPN	ISO 9308: 2 (2012)



Waste water audit:

ACOP campus generates huge amount of wastewater. The source for wastewater in the campus is hostels, institute, mess and the washrooms and urinals inside the campus. To estimate the amount of wastewater generated all the water that is used in the washrooms and hostels is considered as wastewater.

Sr. No.	Section	Wastewater generated in litres
1	Water usage generated in campus	11,512.75
Waste water generated		8634.56

Waste water treatment plant at ACOP:

Currently ACOP lets all its waste water into sewers. Currently there is no any waste treatment facility. Sampling of waste water was done for 3 months for the parameters of COD, BOD, TKN and pH. Following table shows the characterization of wastewater.

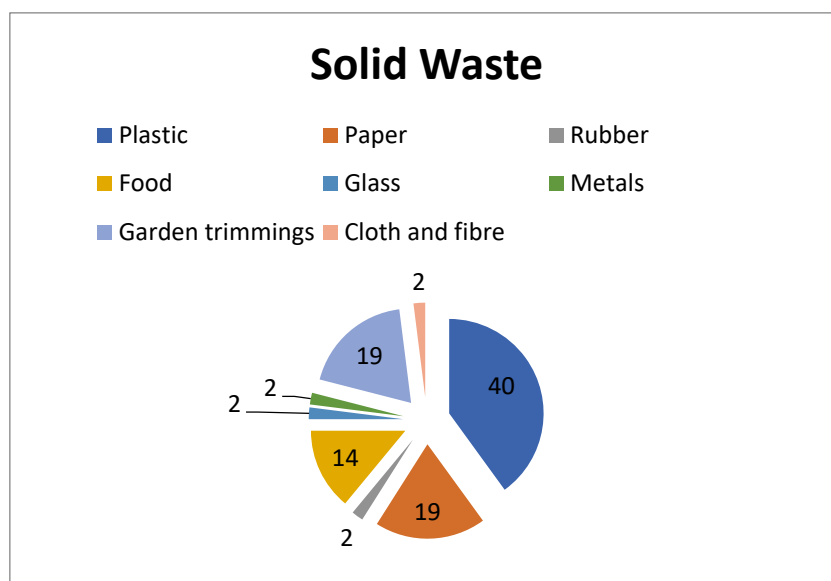
Sr. No.	Parameter	Reading
1	pH	8.01
2	COD	299
3	BOD	177
4	TKN	21

Solid waste Audit:

A waste audit is a physical analysis of waste composition to provide a detailed understanding of problems, identify potential opportunities, and give you a detailed analysis of your waste composition. A waste audit will help you clearly identify your waste generation to establish baseline or benchmark data, Characterize and quantify waste stream, Verify waste pathways, identify waste diversion opportunities and identify source reduction opportunities.

Solid waste is the unwanted or useless solid material generated from the human activities in residential, industrial or commercial area. Solid waste management reduce or eliminates the adverse impact on the environment and human health. Solid waste audit for ACOP was carried out. The entire premise was analysed for solid waste generation and waste characterization. Overall waste was observed and characterization was done. The below table shows the components of solid waste at ACOP campus. Quartering method was used and 1 Kg of waste was selected.

Sr. No.	Type of waste	Composition %
1	Plastic	24
2	Paper	19
3	Rubber	15
4	Food	2
5	Glass	13
6	Metals	15
7	Garden trimmings	7
8	Cloth and fibre	5



After analysing all the bins it was observed that plastic had highest contribution viz. 25% followed by the paper waste i.e. 21%. Mostly common observed plastic items were plastic wrappers of chips, soft drinks bottles and chocolate wrappers. The paper waste included paper wrappers, notebook pages, pamphlets and some pieces of cardboard. The third highest waste included rubber gloves etc.

Observations and Conclusion:

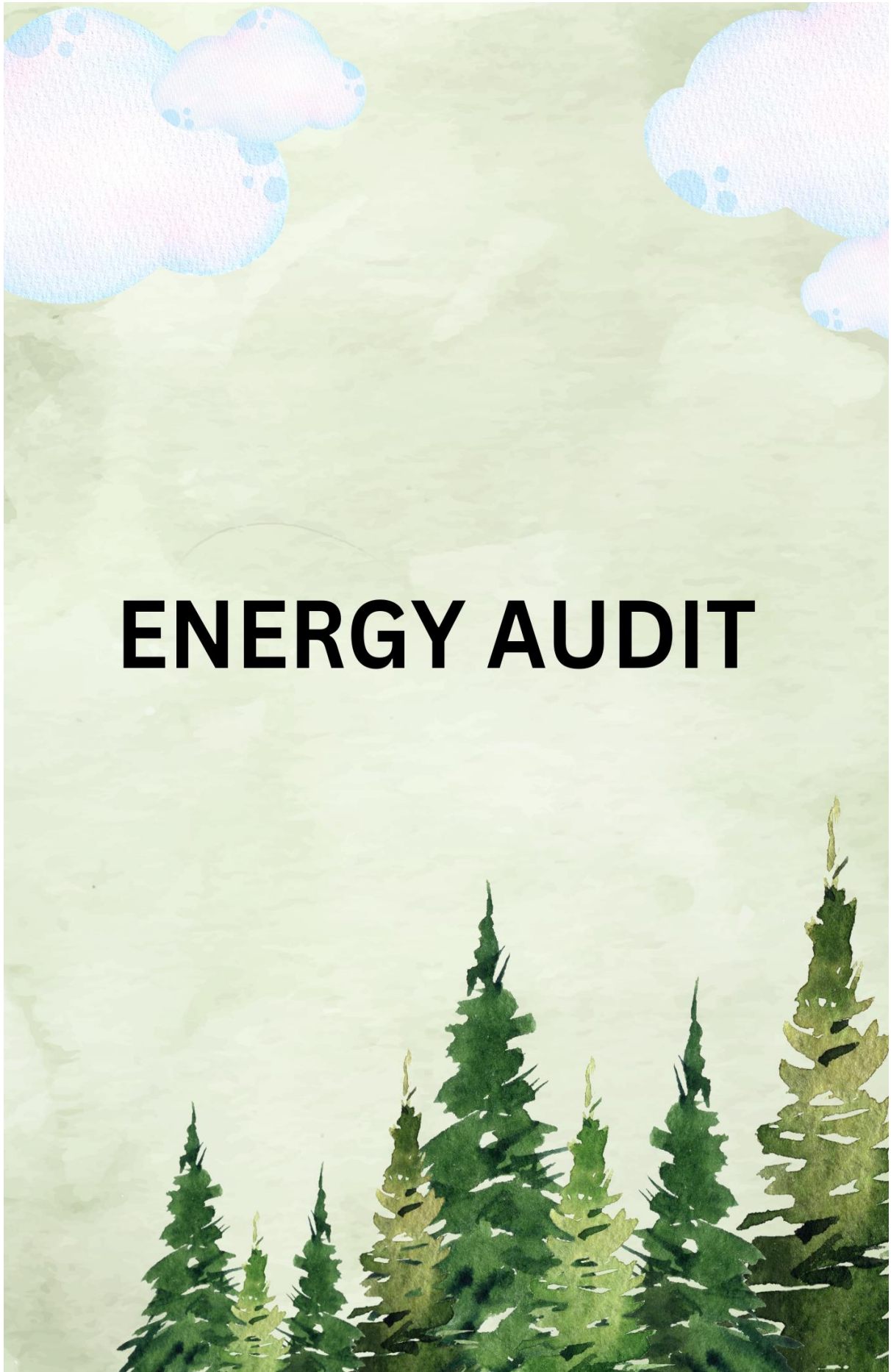
- There are separate bins for wet waste and dry waste. Hence, source segregation takes place.
- Institute has taken steps towards paper recycling. The paper waste collected from the bins is send to vendors.

Assessment of soil was done to determine the quality of soil:

Sr. No.	Test	Results
1	pH	6.7
2	NPK	2:3:2
3	Acidity	144 mg/lit
4	Hardness	166 mg/lit







ENERGY AUDIT

Energy Audit:

An energy audit is an inspection survey and an analysis of energy flows for energy conservation in a building. It may include a process or system to reduce the amount of energy input into the system without negatively affecting the output. In commercial and industrial real estate, an energy audit is the first step in identifying opportunities to reduce energy expense and carbon footprint.

A nation is tiring to advance in quantity and quality to the spread of education among the common India and development of their intelligence. In India the entire field of education and other fields of intelligent activities had been monopolized by a handful of men before independence. But today we are marching towards the desirable status of a developed nation with fast strides. But the development should be a sustained one. For achieving such an interminable development energy management is essential. As far as concerning electricity crisis, we are facing lack of electricity during office work. So, institutional management is taking design regarding production of electricity and saving electricity for Eco social aspect.

Energy requirement of India is growing and incomplete domestic fossil fuel treasury. The country has motivated strategy to enlarge its renewable energy resources and policy to establish the nuclear power plants. India increases the involvement of nuclear power to largely electrical energy development facility from 4.2% to 9%. India's industrial demand accounted for 35% of electrical power requirement, domestic household use accounted for 28%, agriculture 21%, commercial 9%, and public lighting and other miscellaneous applications accounted for the rest. Energy conservation means reduction in energy consumption without making any sacrifice of quantity or quality.

A successful energy management program begins with energy conservation; it will lead to adequate rating of equipment's, using high efficiency equipment and change of habits which causes enormous wastages of energy. By observing all these study lack of electricity and huge electricity demands. It is necessary to plan to be self-sufficient in electricity requirement.

Connection details:

Institute receives electricity from MSEB i.e. Maharashtra State Electricity Distribution Co. Ltd. Following are the details about connection.

- **Type of connection:** HT (High tensioned)

- **Tariff:** 146 HT-VII B
- **Contract demand:** 200 KVA
- **Feeder voltage:** 11 KW

Tariff Structure:

As per Distribution Company, HT and LT consumers have an option to take Time of Day (TOD) tariff instead of the normal tariff. Under TOD tariff electricity consumption and maximum demand in respect of HT consumers for different periods of the day i.e. normal period, peak load period and off-peak load period could be recorded by installing TOD meter. The maximum demand and consumption recorded in different periods could be billed on the following rates of the tariff applicable.

TOD Tariffs	Rate % (Rs./Unit)
0000 Hrs- 0600 Hrs & 2200 Hrs- 2400 Hrs	-1.500
0600 Hrs- 0900 Hrs & 1200 Hrs- 1800 Hrs	0.000
0900 Hrs- 1200 Hrs	0.800
1800 Hrs- 2200 Hrs	1.100

Power Factor:

Power Factor (PF) is an indicator of efficient utilization of power. In an AC (Alternating Current) electrical power system, PF is defined as the ratio of real power flowing to the load, to the apparent power in the circuit and is a dimensionless number.



Bill analysis:

Bill analysis for ACOP had been done for academic year 2018-2019.

Sr. No.	Month	Consumption (Kw)	Bill Amount
1	Apr-18	47364	577033
2	May-18	35532	440494
3	Jun-18	21378	282542
4	Jul-18	32006	393062
5	Aug-18	36182	447274
6	Sep-18	39158	571096
7	Oct-18	44570	665009
8	Nov-18	23966	419913
9	Dec-18	22938	352014
10	Jan-19	26190	406965
11	Feb-19	27450	407417
12	Mar-19	39408	572000

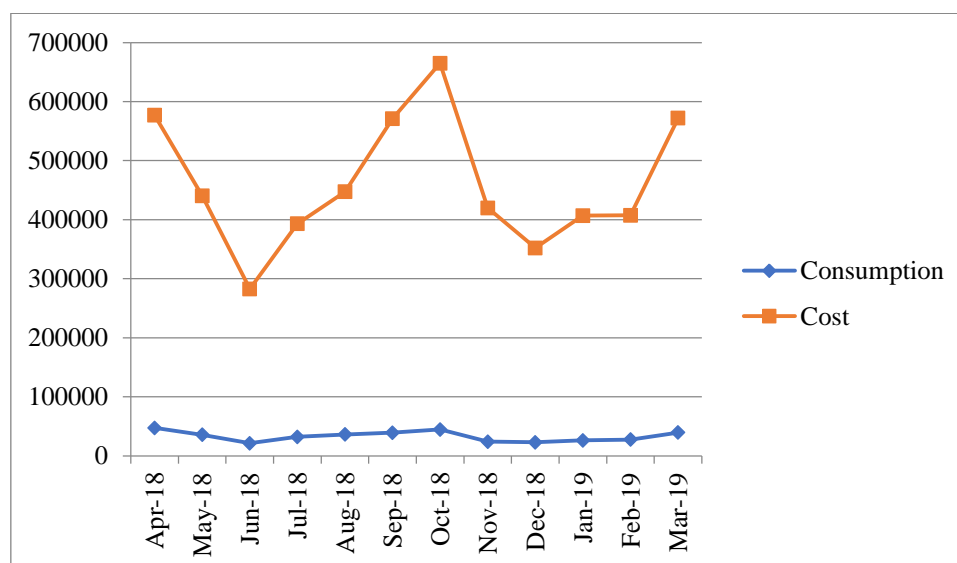
Cost Analysis:

After analysing the bill the average cost expenditure of the institute on energy is about 461234.91 Rs

Consumption analysis

After analysing the bill the average energy consumption of the institute is about 33011 Units

Cost VS Consumption:



ILER analysis:

Lighting is provided in industries, commercial buildings, indoor and outdoor for providing comfortable working environment. The primary objective is to provide the required lighting effect for the lowest installed load i.e. highest lighting at lowest power consumption. The purpose of performance test is to calculate the installed efficacy in terms of lux/watt/m² (existing or design) for general lighting installation. The calculated value can be compared with the norms for specific types of interior installations for assessing improvement options.

Range	Condition
0.5 or less	Urgent activity required (UAR)
0.51 - 0.70	Review Suggested (RS)
0.70- above	Good

ILER analysis for various sections in ACOP were carried out. Firstly using LUX meter illumination was measured and then numerical analysis was carried out. ILER gives idea about lighting conditions and measured regarding improving them.

Main Building analysis

Sr. No.	Section	LUX reading	ILER	Condition
1	Library	138	0.71	Good
2	Classroom	151	0.74	Good
3	Lab 1	169	0.77	Good
4	Lab 2	177	0.81	Good
5	Office	155	0.79	Good

Reasons for Good ILER:

- Proper placement of windows and doors so that natural light is available well.
- Good ventilation system.

Details of light fittings:

Below table shows the main fitting details in the institute building.

Energy	Count
LED	4
Fans	136
PC	111
Printer	7

Laboratory equipment's details:

Lab Number 1 : P'ceutics Lab

Equipment's		Count
1	Homogenizer	1
2	Digital balance (10 mg sensitivity)	5
3	Microscopes	5
4	Stage and eye piece micrometers	5
5	Brookfield's viscometer	1
6	Ball mill	1
7	Sieve shaker with sieve set	1
8	Double cone blender	1
9	Propeller type mechanical agitator	5
10	Autoclave	1
11	Steam distillation still	1
12	Vaccum Pump	1
13	Standard sieves, sieve no. 8, 10, 12, 22, 24, 44, 66, 80	1
14	Tablet panching machine	1
15	Capsule filing machine	2
16	Ampoule washing machine	1
17	Ampoule filling and sealing machine	1
18	Tablet disintegration test apparatus IP	2
19	Tablet dissolution test apparatus IP	4
20	Monsanto's hardness tester	3
21	Pfizer type hardness tester	3
22	Friability test apparatus	2
23	Clarity test apparatus	1
24	Ointment filling machine	2
25	Collapsible tube Crimping Machine	2
26	Tablet coating pan	1
27	Magnetic stirrer, 500ml and 1 litre capacity with variable speed control	5
28	Digital pH meter	2
29	Aseptic Cabinet	1

Audit Report 2018-2019

30	BOD Incubator	1
31	Incubator	1
32	Bottle washing machine	1
33	Bottle sealing machine	1
34	Bulk Density Apparatus	1
35	Conical Percolator (Stainless Steel)	15
36	Capsule Counter	2
37	Energy meter	2
38	Hot plate	1
39	Humidity Control Oven	1
40	Liquid Filling machine	1
41	Mechanical stirrer with speed regulator	2
42	Tray Drier	1
43	Refrigerator	1
44	Laminar air flow	1
45	Colony counter	1
46	Zone reader	1
47	Moisture Balance	1

Lab Number 2: Pharmacology Lab

Equipment's		Count
1	Microscopes	15
2	Haemocytometer	20
3	Sahli's haemocytometer	20
4	Hutchinson's spirometer	2
5	Sphygmomanometer	5
6	Stethoscope	5
7	Permanent Slides for various tissues	100
8	Models for various organs	
9	Specimen for various organs and system	
10	Skeleton and bones	
11	Different Contraceptive Devices and models	

Audit Report 2018-2019

12	Muscle electrodes	1
13	Lucas moist chamber	1
14	Myographic lever	1
15	Stimulator	1
16	Centrifuge	1
17	Electronic Balance	1
18	Physical/Chemical Balance	7
19	Sherrington's Kymograph Machine polyrite	10
20	Sherrington Drum	10
21	Digital Kymograph drum	10
22	Perspex bath assembly (single unit)	10
23	Aerators	10
24	Act photometer	1
25	Rota rod	1
26	Pole climbing apparatus	1
27	Analgesiometer (Eddy's hot plate and radiant heat method's)	1
28	Convulsmograph	1
29	Plethymograph	1
30	Stereotaxic apparatus	1
31	CPP Conditioned place Preference Chamber	1
32	EIESA plate redder	1

Lab Number 3: Pharmacognosy

Equipment's		Count
1	Microscope	15
2	Digital balance (10 mg sensitivity)	2
3	Autoclave	1
4	Hot air oven	1
5	Refrigerator	1
6	Colony counter	1
7	Camera Lucida	15
8	Eye piece micrometre	20

Audit Report 2018-2019

9	Stage micrometre	10
10	Incinerator	1
11	Heating mantle	15
12	Vacuum pump	1

Lab Number 4: Chemistry

Equipment's		Count
1	Oven	3
2	Refrigerator	1
3	Analytical Balances for Demonstration	15
4	Digital balance	3
5	Suction pumps	3
6	Mechanical stirrers	4
7	Digital pH meter	3
8	Microwave Oven	1
9	Sonicetor	1
10	Colorimeter	3
11	UV-Visible Spectrophotometer	1
12	Flourimeter	2
13	Nephelo Turbidity meter	2
14	Flame photometer	2
15	Potentiometer	1
16	Conductivity meter	1
17	HPLC	1





ENVIRONMENTAL & CIVIL
ENGINEERING SOLUTIONS
ISO 9001: 2015, IEC 17025: 2017

CERTIFICATE

This certificate is presented to

**Agnihotri College of Pharmacy.
Wardha**

FOR CARRYING OUT GREEN ENERGY ENVIRONMENT AUDIT
FOR ACADEMIC YEAR 2018-2019

SEEMA N. KAMBLE
DIRECTOR

NIKHIL N. KAMBLE
HEAD