Shri Shivaji Education Society, Amravati's

Dr. H. N. Sinha Arts & Commerce College

Patur, Dist - Akola - 444501

Affiliated to Sant Gadge Baba Amravati University, Amravati

GREEN, ENVIRONMENT AND ENERGY AUDIT REPORT

2025-2026

Prepared by

IQAC

Dr. H. N. Sinha Arts & Commerce College Patur

And

Shri Shri Enviro Consultancy, Amravati

Shri Shri Enviro Consultancy

(Environmental Consultancy)

Shop No 12Sai Pooja Complex,
Near Hanuman Mandir, Swavalambi
Nagar, Kathora Road, Amravati.
444604 Maharashtra

Reg. No. :- 2152700315261921

E-mail:- enviro_gold@rediffmail.com

Date,

To,
Principal,
Dr. H. N. Sinha Arts & Commerce College,
Patur

It is to certify that we Shri Shri Enviro Consultancy, Amravati conducted "GREEN, ENVIRONMENT AND ENERGY AUDIT" of the campus of Dr. H. N. Sinha Arts & Commerce College, Patur, for the Academic Year 2025-2026.

S. V. Bute
Proprietor

INDEX

1INTRODUCTION

In the modern age, rapid industrial development, urban expansion, and continuous population growth have led to serious environmental problems across the world. Issues such as pollution, climate change, depletion of natural resources, and environmental degradation are becoming increasingly critical at both local and global levels. Educational institutions have a major role in spreading environmental awareness and encouraging sustainable practices among students and society. Colleges and universities are not only places for education and research but also serve as important centers for promoting environmental responsibility through various eco-friendly activities. Therefore, Green Audit, Environmental Audit, and Energy Audit have gained importance as effective tools for evaluating and improving the environmental performance of educational institutions.

Green Audit is a systematic process that helps in assessing the environmental conditions and sustainability practices followed within a campus. It includes the identification, evaluation, documentation, and analysis of various environmental components and green initiatives implemented by the institution. The primary aim of a Green Audit is to ensure the efficient use of natural resources such as water, energy, land, and biodiversity while reducing pollution and waste generation. It also helps institutions understand the environmental impact of their activities and motivates them to adopt sustainable development practices.

The scope of Green Audit includes several environmental aspects such as campus greenery, plantation programs, biodiversity conservation, waste management, water conservation, rainwater harvesting, reduction of plastic use, and carbon footprint control. It also reviews environmental awareness programs organized for students, teachers, and staff members. Conducting a Green Audit enables institutions to identify areas requiring improvement and implement suitable corrective measures to develop a cleaner and greener campus environment. A well-maintained green campus contributes to ecological balance and creates a healthy atmosphere for academic activities.

Environmental Audit is another important environmental management tool used to evaluate the environmental performance of an institution or organization. It is a planned, documented, and objective assessment process that examines whether environmental practices are being carried out according to environmental policies, standards, and regulations. Environmental Audit helps

identify sources of pollution, environmental hazards, and patterns of resource consumption. It also assists institutions in adopting effective environmental management practices for sustainable growth and development.

Environmental Audit generally includes the evaluation of air quality, water quality, sanitation facilities, waste management systems, laboratory safety, noise pollution, and chemical handling practices. Educational institutions generate different forms of waste such as solid waste, liquid waste, electronic waste, and laboratory waste, which can harm the environment if not properly managed. Through Environmental Audit, institutions can monitor their environmental impacts and implement proper pollution control and waste management measures. It also helps create environmental awareness and responsibility among students and staff members.

Energy Audit is a scientific and technical assessment conducted to study the pattern of energy consumption within an institution. The main purpose of Energy Audit is to identify areas of energy wastage and recommend suitable measures for energy conservation and efficient utilization. Educational institutions consume significant amounts of electricity for lighting, laboratory equipment, computers, fans, air conditioners, water pumps, and other facilities. Improper and excessive use of energy increases operational costs and contributes to environmental pollution through higher carbon emissions. Hence, Energy Audit plays an important role in promoting energy efficiency and sustainable energy management.

The Energy Audit process involves analyzing electricity consumption, evaluating electrical appliances and lighting systems, and identifying opportunities for energy savings. It also encourages the use of renewable energy resources such as solar energy and promotes energy conservation practices throughout the campus. Recommendations provided during the audit help institutions reduce unnecessary energy consumption and minimize environmental impacts. The installation of LED lights, use of energy-efficient appliances, natural ventilation, and adoption of solar panels are some common measures suggested for energy conservation.

Green Audit, Environmental Audit, and Energy Audit are interconnected processes that collectively contribute to sustainable campus management. These audits help institutions assess their environmental performance and encourage the implementation of environmentally friendly policies and practices. They support the principle of sustainable development, which emphasizes fulfilling present needs without compromising the ability of future generations to fulfill their own

needs. Sustainable campuses not only help conserve natural resources but also promote environmental ethics among students and society.

In India, environmental sustainability in higher education institutions has been strongly encouraged by the National Assessment and Accreditation Council (NAAC). The University Grants Commission (UGC) established NAAC to assess and accredit higher educational institutions based on quality standards and institutional performance. Under the revised accreditation framework, environmental sustainability and green initiatives are considered important aspects of institutional evaluation and development.

NAAC encourages colleges and universities to conduct Green Audit, Environmental Audit, and Energy Audit as part of their quality enhancement and sustainable development practices. These audits are mainly associated with Criterion VII – Institutional Values and Best Practices. According to NAAC guidelines, institutions are expected to implement activities related to energy conservation, water conservation, waste management, green campus initiatives, and environmental awareness programs. Conducting such audits reflects the institution's commitment towards environmental protection and social responsibility.

NAAC also promotes the adoption of eco-friendly measures such as renewable energy systems, rainwater harvesting, waste recycling, green landscaping, and barrier-free infrastructure. Institutions are advised to maintain records and reports of environmental activities and audits as supporting documents during the accreditation process. These initiatives help improve environmental quality and positively influence NAAC assessment and accreditation outcomes.

The process of Green, Environmental, and Energy Audit generally involves field surveys, collection of data, direct observations, analysis, documentation, and preparation of recommendations. Audit teams study various environmental parameters and suggest corrective and preventive measures for improving campus sustainability. The observations and recommendations obtained from these audits help institutional authorities formulate environmental policies and future action plans.

In conclusion, Green Audit, Environmental Audit, and Energy Audit are important tools for promoting environmental sustainability and efficient resource management in educational institutions. These audits help conserve natural resources, reduce pollution, improve energy efficiency, strengthen waste management systems, and spread environmental awareness among students and society. They also support institutional growth and sustainable development in

accordance with NAAC guidelines. By regularly conducting these audits and implementing eco-friendly practices, educational institutions can make meaningful contributions toward environmental conservation and a sustainable future.

NEED OF AUDIT FOR EDUCATIONAL INSTITUTIONS

Green, Environmental, and Energy Audits are important for educational institutions because they help assess and improve the environmental quality and resource management practices of the campus. These audits identify the excessive use of electricity, water, and other natural resources and suggest suitable measures for conservation and efficient utilization. They also help in maintaining cleanliness, proper waste management, biodiversity conservation, and a healthy green environment within the institution. Educational institutions generate different types of waste such as solid waste, laboratory waste, and e-waste, and audits help in managing these wastes scientifically to reduce environmental pollution. In addition, these audits create environmental awareness among students, teachers, and staff members and encourage sustainable practices in daily activities. Conducting Green, Environmental, and Energy Audits also supports institutional development according to the guidelines of the National Assessment and Accreditation Council (NAAC) and promotes the establishment of a sustainable, eco-friendly, and energy-efficient campus.

COLLEGE PROFILE

Shri Shivaji Education Society is a renowned educational organization in the Vidarbha region of Maharashtra, established in 1931–32 by Dr. Panjabrao Deshmukh. A visionary leader, social reformer, and the first Agriculture Minister of independent India, Dr. Deshmukh founded the society with the objective of spreading quality education among rural and underprivileged communities. The society was officially registered as a Public Charitable Trust in December 1932 and has since remained committed to educational advancement and social welfare. Headquartered in Amravati, the society has expanded its educational services throughout the Vidarbha region by establishing numerous institutions such as schools, junior and senior colleges, engineering and polytechnic institutes, agricultural and medical colleges, nursing institutions, biotechnology centers, hostels, and vocational training institutes.

The society primarily focuses on providing affordable and quality education to students from socially and economically weaker sections while promoting rural development through science, technology, agriculture, and skill-oriented learning. Over the years, it has contributed significantly to various fields including arts, commerce, science, law, engineering, agriculture, biotechnology, medical education, and physical education. Due to its remarkable work in education and social service, the society has received several prestigious awards from the Government of Maharashtra. It was honored with the "Dr. Babasaheb Ambedkar Dalit Mitra Award" in 1993–94 and the "Gadge Maharaj Memorial Award" during 1999–2000. In recognition of its excellent administration and educational contribution, the Government of Maharashtra also declared the society as the "Best Administered Society" on 5 September 2000.

Smt. Savitridevi Sinha in the memory of her husband Dr. H. N. Sinha established Arts & Commerce College at Patur under the Berar Education Society in 1966 for the educational development of the student from this area. Dr. H. N. Sinha was a lecturer with the speciality in History subject. He was principal at Morris College, Nagpur. Dr. Sinha was very helpful towards the local Berar education society. He donated many things with free hand to the society. Therefore in the memory of this dynamic person she started college.

At the time of establishment there were 92 students for Arts & 45 students for commerce stream. It is one of the rural colleges run by Shri Shivaji Education Society. Students from 120 & above villages adjoining Patur tahsil come to this college for education. These villages are located in the

hilly area so most of them belong to B.C. & minority community. They attend college regularly in spite of communication hurdles.

The college campus is located beside Akola Washim highway. The college has its own building having 20 class rooms, commodious building and an eye pleasing Botanical garden.

VISION

"Excellence in higher education, empowerment through knowledge, inclusive growth for socio-economic change and sustainable development''.

MISSION

- To impart quality education to the poor, downtrodden masses and to the last man of the society.
- To provide facilities for the acquisition of knowledge and information and advancement of culture.
- To promote quality teaching and learning through suitable academic environment.
- To undertake quality research in basic, applied and interdisciplinary sciences.
- To empower students through education to make them strong, self-reliant, responsible and secular human beings, professionals and citizens.
- To help the needy and economically weaker students in education.
- To inculcate discipline, sincerity and devotion among the students to make them most responsible and respectable citizens of India.
- To foster Regional, National and Global competencies among the students.

OBJECTIVE

- To provide a platform to the students by giving them an opportunity to face all the challenges of the competitive world with utmost utilization of their potential in sports, athletic, cultural and other events.
- To provide State of Art infrastructure to students and the faculty.
- To promote the use of technology.
- To impart basic human values of truth and hard work.
- To promote excellence in students through
- Participation in seminars, workshops, conferences, debates etc. at National and International levels.
- Exposure to eminent and distinguished persons in different fields through Talks.
- Visit to Industries, Asylums, Organization of camps, Excursions etc.
- Financial and other assistance to deserving and meritorious students.

HISTORICAL & CULTURAL PATUR

Ancient 'Parashar'nagar means today's 'Patur' situated in the lap of the mountain,Patur city is identified by names as "Nanasaheb's Patur' or 'Patur Shahababu'. The city has four sides large defence wall with large four Doors.Even today'shahababu ves, 'balapur ves',Gond Ves',are existed,the only 'khanapur ves' is swallowed in the belly of time.on the east Bhuddhashram,and to the west ancient caves are existed.It is said that patur's Jain Chaitya Vihar,is erected by Jain King 'ILLA'in 1057. The places like "sahababu dargh,Bitch Zira,Jagatmata Renuka devi mandir',nanasaheb Mandir,Dipmala in nanasaheb Mandir,pious place by the touch of the feet of Shri Chakradhar-Kawaleshwar,Bordi or Suvarna River Which is famous for gold coins even today are best examples (Witness) of historical and cultural background of Patur.

In Patur surrounding village deity 'Ravan, (Sangola), 'Kazimahal', Shri Vishnumandir, 'Koleshwar Mandir' (Batrshtakali), 'Rudrayani Mata' (Chincholi), Fifteen Hundred Years old 'Vatvruksha' (Ambashi), 'Chakardharswami's Charankit Sthal' (Patur, Barshtakali, Ghatali, Yelwan, Alegaon), Vishunathabas Balapurkar's the writer of 'Dhnyaprabodha', Hingan Wadegaon, Temple like 'Jageshwar' (Wadegaon), 'Moreshwar' (Sindhakheda), and other ancient historical information and unique natural beauty is beyond our sight.

As this city got religious cultural and historical heritage various religions and reces like Suffi, Jain, Warkari, Mahanubhav, Datta, Nath Panth are lived happily here.This is the outstanding achievement of the city.

Today, farmers of this area provides flowers and fruits to all Maharashtra because of abundant natural treasure Patur is known as 'Califorina of Vidarbha'.

GEOGRAPHY

Dr. H. N. Sinha Arts and Commerce College is located in Patur town of Akola district in the Vidarbha region of Maharashtra, India, at an approximate latitude of 20.460° N and longitude of 76.940° E. The college is well connected by road to nearby cities such as Akola, Washim, and Amravati, and is situated along the Akola–Washim road. The surrounding region mainly consists of semi-urban settlements, agricultural fields, and scattered vegetation, providing a balanced natural environment around the campus.

The area experiences a tropical monsoon climate with three major seasons: summer, monsoon, and winter. Summers are hot and dry, while the monsoon season receives moderate rainfall from southwest monsoon winds. Winters remain cool and pleasant. Geologically, the region is a part of the Deccan Trap formation characterized by basaltic rocks of volcanic origin. The soil type is predominantly black cotton soil (regur soil), known for its fertility and moisture-retaining capacity, making it suitable for agricultural activities. These geographical and environmental conditions support greenery, biodiversity, and sustainable environmental practices within the college campus.

INFRASTRUCTURAL FACILITIES

- The college has a big campus of 4 acres.
- Infrastructural and Learning resources of the institution are consistently developed and maintained. We have spacious college building having total 18 teaching and learning class rooms and 8 fully equipped laboratories.
- The college campus comprises of playground- having 200 mts running track, Kabbadi ground, Vollely Ball, Khokho, Long Jump, High Jump, Discus,Shotput, Javelin, Hammer throw ground.
- Academic facility consists of students support facilities, Canteen, library, reading room, Girls' common room, Boys' common room, administrative building, Vehicle parking area and various subject departments.
- Total land area of the college is 4 acres and total built up area is 3785 sq.mt, with G+1 floor and adequate parking facility. Construction of College Main Gate, Wall compound installation of Pavers and renovation of Chemistry Laboratory, Commerce Seminar Hall, Boys/Girls Common Room,
- For the security of students, the college campus is fully under CCTV surveillance. The fire safety system is also installed. To overcome the problem of power cut, the Generator and UPS are setup at various places. The use of Solar panels, LED lights helped to minimize the electricity consumption.
- There is 01 Auditorium , 03 ICT cum Seminar halls, a language laboratory and IQAC meeting hall.
- The college has learning resources- 62 Computers, 03 Laptops with internet facility, LCDs, Scanner and Printers, Smart Boards in class rooms.
- College has indoor and outdoor play grounds, Yoga centre, meditation hall, recreation hall for all rounddevelopment of students.
- The institution has made provision of NLIST- facility with E-Books and E-Journals. The library has SOUL 3.0 software. The students have an access through OPAC. College campus is Wi-Fi enabled.
- The ornamental and medicinal plant garden, vermicomposting unit and TALKING TREE app is installed to get technical information of plants in college campus.
- There is a rich and prosperous library in the college. There are approximately 19,882 books,47 Journals and periodicals in the college library. The library has the largest stock

of the old as well as the recent books on all diverse subjects. Reference books are also available in a large quantity.

- Drinking water tank, Gymnasium, tea-canteen etc. are available here.
- At the entrance of the college there is a beautiful garden which is taking beautiful shape.
- A spacious playground is available for the students to play different games.
- There is girls'and boys'common room for recreation.


ग्रंथालय
LIBRARY
DEPARTMENT
LIBRARY


Shri Shivaji Education Society Amravati's
Dr. H. N. Sinha Arts &
Commerce College, Patur
ADMINISTRATIVE BLOCK

OBJECTIVE OF AUDIT

- To examine the environmental status and sustainability initiatives implemented by the educational institution.
- To study the effective utilization and conservation of natural resources like water, energy, and land.
- To detect the sources of environmental pollution and excessive use of resources within the campus area.
- To promote energy efficiency and encourage the utilization of renewable and eco-friendly energy resources.
- To evaluate the existing practices for the management of solid waste, liquid waste, and e-waste generated on the campus.
- To conserve biological diversity, enhance green cover, and maintain environmental balance in the institution.
- To create awareness regarding environmental protection and develop a sense of responsibility among students and staff members.
- To encourage environmentally friendly activities such as recycling, rainwater harvesting, and minimizing plastic use.
- To strengthen sustainable campus development and improve the overall environmental quality of the institution.
- To fulfill the environmental sustainability criteria recommended by the National Assessment and Accreditation Council (NAAC).

GOALS OF AUDIT

- To promote environmentally sustainable activities and practices within the educational campus.
- To ensure the conservation and judicious utilization of natural resources available in the institution.
- To minimize environmental pollution and control waste generation in the campus area.
- To encourage energy-saving methods and increase the adoption of renewable energy resources.
- To maintain a clean, healthy, green, and eco-friendly educational environment.
- To conserve biodiversity and improve the green landscape of the institution.
- To create environmental consciousness and responsible attitudes among students, faculty, and staff members.
- To support sustainable institutional progress as per the recommendations of the National Assessment and Accreditation Council (NAAC).

SCOPE OF AUDIT

The scope of Green, Environment, and Energy Audit includes the examination of environmental quality, energy consumption, and sustainability practices adopted by the educational institution. It covers various components such as green campus development, biodiversity conservation, water resource management, rainwater harvesting, sanitation facilities, waste disposal systems, air and noise quality assessment, and environmental awareness activities. The audit also studies energy utilization patterns, energy conservation initiatives, renewable energy applications, and the efficiency of electrical equipment used on the campus. In addition, it evaluates the handling and management of solid waste, liquid waste, laboratory waste, and electronic waste produced within the institution. The audit helps in identifying environmental challenges, unnecessary resource consumption, and opportunities for improving sustainable campus management while meeting environmental norms and NAAC sustainability guidelines.

METHODOLOGY OF AUDIT

In the present era, environmental sustainability has become a major concern due to rapid industrialization, urbanization, population growth, and overexploitation of natural resources. Environmental problems such as pollution, climate change, biodiversity loss, and energy crises are increasing continuously and affecting ecological balance as well as human well-being. Educational institutions play a significant role in spreading environmental awareness and encouraging sustainable practices among students and society. Colleges and universities are not only centers of learning but also important platforms for implementing eco-friendly activities and responsible resource management practices. In this context, Green Audit, Environmental Audit, and Energy Audit are essential tools for assessing environmental performance and promoting sustainable campus development.

Green Audit helps evaluate greenery, biodiversity, waste management, and environmental practices adopted within the institution. Environmental Audit focuses on assessing environmental quality and compliance with environmental standards and regulations. Energy Audit mainly examines energy consumption patterns and identifies opportunities for energy conservation and efficient utilization of resources. Together, these audits assist institutions in identifying environmental problems, reducing resource wastage, improving environmental quality, and encouraging sustainable practices on the campus.

The methodology of Green, Environment, and Energy Audit involves systematic planning, data collection, field surveys, analysis, and reporting. The audit process helps understand the present environmental condition of the institution and provides recommendations for future improvements. The methodology is generally divided into three major stages: Pre-Audit Phase, During-Audit Phase, and Post-Audit Phase.

1. Pre-Audit Phase

The pre-audit phase is the preliminary and planning stage of the audit process. This phase mainly focuses on preparing a proper framework and strategy for conducting the audit efficiently. During this stage, the objectives, scope, and criteria of the Green, Environment, and Energy Audit are clearly defined. An audit team is formed consisting of faculty members, environmental experts, technical staff, and other supporting members associated with the assessment process.

A detailed schedule and plan for the audit are prepared before starting the field survey. Preliminary information related to infrastructure, water consumption, electricity usage, biodiversity, sanitation, and waste generation is collected from institutional records, electricity bills, water bills, maintenance registers, laboratory records, and previous reports. Campus maps and layouts are also studied to understand the location and distribution of various facilities.

Different audit tools such as questionnaires, checklists, survey forms, and observation sheets are prepared for systematic data collection. Necessary permissions and coordination with institutional authorities are completed during this phase. Awareness regarding the importance and objectives of the audit is also created among students, faculty members, and staff. The pre-audit phase helps the audit team understand the existing environmental condition of the institution and organize the audit process effectively.

2. During-Audit Phase

The during-audit phase is the most important stage of the audit process, involving field investigations, inspections, observations, measurements, and stakeholder interactions. During this phase, the audit team visits different sections of the campus including classrooms, laboratories, libraries, administrative offices, gardens, playgrounds, canteens, water storage facilities, waste disposal areas, and energy utilization units.

Information related to environmental quality and sustainability practices is collected through direct observation and field surveys. The audit team studies plantation activities, campus greenery, biodiversity conservation, water management systems, rainwater harvesting structures, sanitation facilities, waste management practices, and environmental awareness programs conducted by the institution.

For Environmental Audit, attention is given to solid waste management, liquid waste disposal, laboratory waste handling, e-waste management, campus cleanliness, air quality, and noise pollution. Waste segregation, recycling activities, composting practices, and disposal methods are carefully examined to assess their environmental effectiveness.

During the Energy Audit, electricity consumption patterns are analyzed using electricity bills, meter readings, and inspection of electrical appliances. The efficiency of lighting systems, fans, computers, laboratory equipment, air conditioners, and water pumps is assessed. Areas of

excessive energy consumption and opportunities for energy conservation are identified. The use of renewable energy resources such as solar panels and energy-efficient systems like LED lighting is also evaluated.

Photographs, measurements, and field observations are recorded systematically during the survey. Interaction with students, teaching staff, laboratory assistants, administrative personnel, and maintenance workers helps in understanding operational practices and environmental awareness levels within the institution. The data collected during this stage become the basis for further analysis and interpretation.

3. Post-Audit Phase

The post-audit phase is the final stage of the audit process and includes analysis, interpretation, documentation, and preparation of the final report. The information collected during the field survey is systematically organized and analyzed using environmental and energy management parameters. Environmental issues, pollution sources, areas of resource wastage, and deficiencies in management practices are identified through detailed assessment.

The audit findings are compared with environmental standards and sustainability guidelines recommended by the National Assessment and Accreditation Council (NAAC). The strengths and weaknesses of environmental management practices adopted by the institution are highlighted in the report. Based on the observations and analysis, suitable recommendations and corrective measures are suggested to improve energy efficiency, waste management, biodiversity conservation, water conservation, and overall environmental sustainability.

The post-audit phase also includes preparation of tables, charts, photographs, and graphical presentations for proper representation of findings. Recommendations may include installation of renewable energy systems, implementation of rainwater harvesting, improvement in waste segregation and recycling practices, replacement of conventional lighting systems with LED lights, and promotion of environmental awareness activities.

Finally, a comprehensive Green, Environment, and Energy Audit Report is prepared and submitted to the institutional authorities. The report serves as an important document for future planning, policy development, sustainable campus management, and accreditation processes. Proper implementation of the recommendations provided in the audit report helps educational institutions

achieve environmental sustainability, efficient resource utilization, and long-term ecological balance.

GREEN AUDIT

Green Audit is a systematic process carried out to evaluate the environmental condition and sustainability practices of an educational institution. It helps in assessing campus greenery, biodiversity, waste management, water conservation, and eco-friendly initiatives adopted within the institution. One of the important components of Green Audit is the study of floral and faunal diversity present on the campus. Flora includes various types of trees, shrubs, herbs, climbers, ornamental plants, and medicinal plants, while fauna includes birds, butterflies, insects, reptiles, and small animals found in the campus environment. The presence of rich biodiversity reflects the ecological health and environmental quality of the institution.

The assessment of flora and fauna through Green Audit helps in understanding the ecological balance and biodiversity status of the campus. Trees and plants improve air quality, reduce temperature, prevent soil erosion, and create a healthy environment, while birds, butterflies, and other organisms contribute to pollination and maintenance of the ecosystem. Conservation of floral and faunal diversity enhances the aesthetic value of the campus and promotes environmental awareness among students and staff members. Green Audit also encourages institutions to undertake plantation activities, biodiversity conservation programs, and sustainable environmental practices in accordance with the guidelines of the National Assessment and Accreditation Council (NAAC).

GREEN AUDIT OBSERVATIONS

FLORAL DIVERSITY OF COLLEGE

Floral diversity is an important component of a green campus and plays a significant role in maintaining ecological balance and environmental sustainability. The presence of diverse plant species within an educational institution reflects the environmental quality and ecological health of the campus. Plants act as natural indicators of environmental conditions and contribute greatly to improving air quality, regulating temperature, conserving soil moisture, and reducing atmospheric carbon dioxide. A campus enriched with greenery creates a healthy and pleasant atmosphere for students, teachers, and visitors while supporting sustainable development goals. The conservation and management of floral diversity are therefore essential parts of Green Audit and environmental sustainability initiatives.

The campus of the college contains a rich diversity of flora including trees, shrubs, herbs, climbers, ornamental plants, flowering species, medicinal plants, and avenue plantations. These plant species not only enhance the aesthetic beauty of the institution but also provide ecological benefits such as oxygen generation, carbon sequestration, shade, habitat for birds and insects, and microclimatic regulation. The flowering plants and ornamental gardens improve the visual appearance of the campus and create a peaceful educational environment. The green cover also helps in controlling dust pollution, reducing noise levels, and maintaining humidity within the campus premises.

Plants play a major role in supporting biodiversity conservation by providing food and shelter to various birds, butterflies, bees, insects, and other small organisms. The floral diversity of the campus contributes to the development of a balanced ecosystem and strengthens the relationship between flora and fauna. Different native and ornamental plant species present on the campus support pollination and ecological interactions, thereby improving environmental sustainability. The documentation and conservation of floral diversity are therefore important for maintaining the ecological richness of the institution.

During the academic year 2025–2026, the college continued its efforts toward green campus development and biodiversity conservation through various plantation and environmental awareness activities. The institution actively promoted eco-friendly practices by increasing plantation drives within the campus and surrounding areas. A variety of indigenous, ornamental,

medicinal, and shade-giving plant species were planted to improve greenery and enhance environmental quality. The college also focused on maintaining existing plant species through regular watering, soil management, pruning, and protection measures.

The institution has developed gardens and green corridors containing diverse floral species that improve the environmental and aesthetic value of the campus. Pathways, corridors, and open spaces are decorated with flower pots and ornamental plants, creating an attractive and eco-friendly atmosphere. The campus gardens are maintained systematically by a dedicated maintenance team responsible for regular cleaning, trimming, pruning, watering, and care of plants and lawns. Organic manure and sustainable gardening practices are also encouraged for maintaining soil fertility and plant health.

The college administration actively encourages students, teachers, and non-teaching staff to participate in plantation and green campus activities. Various environmental awareness programs such as tree plantation drives, World Environment Day celebrations, biodiversity conservation campaigns, and cleanliness initiatives were organized during the year 2025–2026. Students participated enthusiastically in these activities and developed awareness regarding environmental conservation and the importance of biodiversity protection. Such activities help create environmental responsibility and strengthen the connection between students and nature.

Special attention is given to the conservation of medicinal plants and native species within the campus. Medicinal plants are maintained for educational, ecological, and research purposes and provide opportunities for students to understand their environmental and medicinal importance. The institution also takes measures to prevent damage to plant species and encourages sustainable use of natural resources. The maintenance of greenery and floral diversity contributes significantly to improving air quality, reducing heat stress, and creating a pollution-free educational environment.

The floral diversity of the campus reflects the institution’s commitment toward environmental sustainability and green campus initiatives. Proper documentation and monitoring of plant species are carried out as part of the Green Audit process. The conservation of plant diversity supports ecological stability, enhances campus beauty, and contributes to sustainable environmental management. The institution continuously strives to strengthen its green practices in accordance with the guidelines of the National Assessment and Accreditation Council (NAAC) and promotes

long-term environmental sustainability through active participation in biodiversity conservation and green campus development activities.

FLORA IN CAMPUS

Sr. No.	Common Name	Botanical Name	Numbers
1	Neem	*Azadirachta indica*	48
2	Java plum	*Syzgium cumini*	06
3	Arjuna	*Terminalia arjuna*	05
4	Golden shower tree	*Cassia fidtula*	04
5	Banyan	*Ficus benghalensis*	02
6	Peepal	*Ficus religiosa*	02
7	Mango	*Mangifera indica*	02
8	Guava	*Psidium guajava*	02
9	Indian tree of heaven	*Ailanthus exceisa*	01
10	Devils tree	*Alstonia scholaris*	01
11	Almond	*Melia azedarach*	12
12	Pongam	*Pongamia pinnata*	37
13	India cork tree	*Millingtonia hortensis*	04
14	Copperpod	*Petophorum pterocarpum*	13
15	Flame of forest	*Butea monosperma*	02
16	Indian gooseberry	*Phyllannthus emblica*	01
17	Custard apple	*Annona squamosa*	25
18	Sandalwood	*Santalum album*	02
19	Jujube	*Ziziphus jujuba*	03
20	Indian cherry	*Cordia dichotoma*	01
21	Plam	*Borassus flabellifer*	01
22	Bottle palm	*Hyo[horbe lagenicaulis*	09
23	Ashoka	*Polyalthia longifolia*	20
24	Chaste tree	*Vitex negundo*	04
25	Bel	*Aegle marmelos*	01
26	Drumstick	*Moringo olifera*	02
Total			**210**

FLORA IN BOTANICAL GARDEN

Sr. No.	Common Name	Botanical Name	Numbers
1	Rose	*Rosa*	16
2	Lotus	*Nelumbo*	10
3	Marigold	*Calendula*	07
4	Daisy	*Bellis parennis*	05
5	Tulip	*Tulipa*	04
6	Bell flower	*Caeapanula*	02
7	Lity	*Lilium*	06

Alstonia scholaris

Polyalthia longifolia

Azadirachta indica

Cassia fidtula

ENVIRONMENTAL AUDIT

Environmental Audit is a systematic process used to evaluate the environmental performance and management practices of an institution, industry, or organization. It helps in assessing the efficient use of natural resources and identifying environmental issues related to water consumption, noise pollution, solid waste generation, energy use, and overall environmental quality. Environmental audits are important tools for promoting sustainable development and ensuring compliance with environmental regulations and standards.

In educational institutions, environmental audits play a significant role in creating awareness about environmental conservation and sustainable practices among students and staff. The audit helps in identifying areas where improvements can be made in water management, noise control, and waste disposal systems. Proper implementation of environmental audit recommendations contributes to maintaining a clean, healthy, and eco-friendly campus environment while encouraging responsible use of natural resources.

ENVIRONMENTAL AUDIT OBSERVATION

WATER AUDIT

Water is an essential natural resource that supports all forms of life and plays a vital role in maintaining ecological balance and environmental sustainability. Educational institutions are expected to adopt proper water management practices to ensure the judicious use and conservation of available water resources. A water audit serves as an effective method for assessing water consumption, identifying sources of supply, detecting leakages or wastage, and suggesting appropriate conservation measures. The Water Audit of Dr. H. N. Sinha Arts & Commerce College, Patur for the academic year 2025–2026 was undertaken to evaluate water availability, utilization patterns, conservation practices, and the quality of water resources within the campus.

The institution mainly relies on well water and bore well water to meet its daily water requirements. Bore well water is primarily used for gardening and maintaining the green landscape of the campus, whereas well water is utilized for drinking, sanitation, cleaning, and other routine domestic purposes. To promote sustainable utilization of water resources, the college has implemented several water conservation strategies and management practices. Awareness regarding responsible water usage is continuously encouraged among students, teaching staff, and non-teaching staff through various awareness programs and regular monitoring systems.

An important initiative adopted by the college is the installation of a rainwater harvesting system. This system helps in collecting and storing rainwater for different non-potable purposes and contributes significantly to groundwater recharge. Rainwater harvesting reduces dependence on external water sources and minimizes unnecessary wastage of water. It also supports the maintenance of groundwater levels in the surrounding area and reflects the institution’s commitment toward environmentally sustainable practices.

The college has established a water purification facility to provide safe and hygienic drinking water to students, staff members, and visitors. The purification system is regularly maintained to ensure the continuous availability of clean drinking water across the campus. Access to safe drinking water is essential for protecting health and preventing waterborne diseases. Therefore, the institution gives special importance to maintaining water quality and monitoring the water storage and distribution systems on a regular basis.

Several water-saving practices have also been introduced to reduce excessive water consumption on the campus. The institution has installed low-flow faucets, efficient taps, and water-saving toilet systems in various sections of the college. Leakages in pipelines and water storage units are repaired immediately to prevent water loss. Proper drainage systems and effective water

distribution practices are maintained to ensure the optimum use of available water resources. These measures collectively help in minimizing overall water consumption within the institution.

Water is extensively used for multiple purposes across the campus. It is utilized for drinking, sanitation, handwashing, cleaning classrooms, offices, corridors, and washrooms. Water is also required for gardening, irrigation of ornamental plants, maintenance of greenery, plantation drives, cleaning of sports grounds, vehicle washing, and other domestic activities associated with the daily functioning of the institution. Adequate water availability contributes significantly to campus cleanliness, hygiene, and the overall aesthetic environment.

To ensure water safety and quality, the institution periodically conducts physico-chemical analysis of water samples collected from the campus. These analyses are carried out to detect any possible hazardous substances or microbial contamination. The parameters analyzed include colour, odour, temperature, pH, hardness, and other essential characteristics related to drinking water quality. Regular monitoring of these parameters helps maintain safe water standards and prevents health risks associated with contaminated water.

The green campus initiative of the college is further strengthened through efficient water management practices. The utilization of bore well water for gardening and plantation activities helps in maintaining greenery and improving the ecological condition of the campus. Trees, lawns, and ornamental plants contribute to better air quality, reduction in surrounding temperature, and the creation of a pleasant educational atmosphere. These sustainable water management efforts clearly reflect the institution’s dedication toward environmental conservation and responsible resource utilization.

TABLE: ANALYSIS OF DRINKING WATER

Sr. No.	Parameter	Unit	Observed Value	BIS Permissible Limit
1	Colour	Hazen Unit	Colourless	5
2	Odour	--	Agreeable	Agreeable
3	Temperature	°C	27°C	Ambient
4	pH	pH Unit	7.2	6.5 – 8.5
5	Total Hardness	mg/L	145	200
6	Total Dissolved Solids (TDS)	mg/L	320	500
7	Chloride	mg/L	85	250
8	Alkalinity	mg/L	118	200
9	Turbidity	NTU	0.6	1

Overall, the Water Audit 2025–2026 of Dr. H. N. Sinha Arts & Commerce College, Patur demonstrates the institution's commitment toward effective water utilization, quality maintenance, and sustainable conservation practices. The adoption of rainwater harvesting systems, water purification facilities, water-saving devices, and regular monitoring of water quality highlights the college's dedication toward environmental sustainability. Through these initiatives, the institution continues to encourage awareness regarding water conservation and promotes responsible environmental practices among students and staff while ensuring proper management of valuable water resources.


UV - WATER PURIFIER SYSTEM

SOLID WASTE AUDIT

Solid waste management is an essential aspect of environmental sustainability and maintaining campus hygiene. Educational institutions have an important responsibility in encouraging environmentally friendly waste management practices through proper segregation, collection, recycling, reuse, and safe disposal of waste materials. A Solid Waste Audit is an effective method for assessing the quantity and nature of waste generated on the campus and evaluating the efficiency of existing waste management systems. The Solid Waste Audit of Dr. H. N. Sinha Arts & Commerce College, Patur for the academic year 2025–2026 was carried out to examine waste generation patterns, segregation methods, disposal practices, recycling activities, and sustainable waste management initiatives adopted by the institution.

The college campus produces nearly 3–6 kg of solid waste every day. A significant portion of this waste consists of biodegradable materials such as dry leaves, fallen tree litter, garden waste, and other organic residues generated from the maintenance of the green campus. To maintain cleanliness and environmental hygiene, the institution ensures regular collection and disposal of waste generated from classrooms, offices, laboratories, corridors, gardens, and other campus areas. Dustbins are installed at various locations across the campus for systematic collection of solid waste materials.

The institution practices segregation of waste at the source by providing separate bins for biodegradable and plastic waste. Organic waste materials including dry leaves, plant residues, food waste, and garden litter are collected separately and processed through composting techniques. The compost produced from biodegradable waste is utilized as organic manure for gardens and plantation areas within the campus. This practice helps in reducing the amount of waste sent for disposal and supports sustainable utilization of biodegradable resources.

Paper waste generated from academic, examination, and administrative work is managed through reuse and recycling practices. Single-sided printed papers are reused for writing, rough work, internal printing, and office documentation in various departments. Non-essential and non-confidential records are sent for recycling after the completion of their official retention period. Through these practices, the institution promotes paper conservation and encourages responsible use of resources among students and staff members.

As part of its environmental sustainability initiatives, the college also encourages paperless administrative practices. Digital communication systems, electronic record maintenance, and online documentation are promoted to reduce paper consumption and minimize carbon emissions associated with printing activities. The institution avoids the use of carbon copy bills and adopts eco-friendly office practices whenever possible. Printer cartridge refilling is outsourced when required, which contributes to reducing electronic and plastic waste generated from office equipment.

A very small quantity of plastic waste, approximately 0.1 kg per day, is generated from certain departments, office activities, and garden maintenance work. Although the amount of plastic waste is limited, the institution continuously creates awareness regarding plastic reduction and environmentally responsible disposal methods. Metal and wooden waste materials generated during repair and maintenance activities are collected separately and handed over to authorized scrap dealers for proper recycling and processing.

The college regularly emphasizes cleanliness, sanitation, and environmental awareness through active participation in campus cleaning drives, plantation programs, and waste management awareness activities. **Students, teaching staff, and non-teaching staff actively participate in maintaining a clean and eco-friendly campus environment. Proper waste management practices adopted by the institution contribute significantly toward environmental protection, pollution reduction, and campus sustainability.**

Overall, the Solid Waste Audit 2025–2026 of Dr. H. N. Sinha Arts & Commerce College, Patur highlights the institution's commitment toward sustainable and environmentally responsible waste management practices. The adoption of waste segregation, composting, recycling, paper reuse, paperless administration, and systematic waste collection methods demonstrates the college's dedication to environmental conservation and sustainable development. These initiatives not only help in minimizing waste generation and reducing pollution but also create environmental awareness and responsible behavior among students and staff members.

NOISE AUDIT

Noise pollution is one of the significant environmental concerns that can adversely affect human health, concentration, communication, and the overall learning environment. Educational institutions require a calm and peaceful atmosphere for effective teaching, learning, and academic activities. A Noise Audit is conducted to assess the intensity of noise levels within the campus and to evaluate the measures adopted for controlling and minimizing noise pollution. The Noise Audit of Dr. H. N. Sinha Arts & Commerce College, Patur for the academic year 2025–2026 was undertaken to monitor campus noise levels and examine the effectiveness of existing noise control practices.

The college has adopted several preventive and control measures to minimize noise pollution within the campus premises. The institution has declared the campus as a Silent Zone to maintain a peaceful academic atmosphere. Appropriate signboards indicating “Silent Zone” and “Keep Silence” have been installed at different locations across the campus to create awareness among students, staff, and visitors regarding noise control and discipline. Students are also encouraged to keep their mobile phones in silent mode during academic sessions, seminars, meetings, and library hours.

The institution continuously promotes awareness regarding the harmful effects of excessive noise and encourages responsible behavior among students and staff members. Vehicular movement within the campus is controlled to reduce unnecessary honking and traffic-related disturbances. Loudspeakers and high-volume sound systems are avoided during regular academic activities to maintain a suitable learning environment. These initiatives help in reducing stress, distractions, and disturbances within the institution.

The college campus is surrounded by greenery and plantation areas, which also contribute to noise reduction. Trees and ornamental plants act as natural sound barriers and help absorb environmental noise. The institution has undertaken plantation activities in and around the campus to minimize the future impact of noise pollution and improve the ecological environment. The green campus not only reduces noise intensity but also enhances air quality and provides a pleasant atmosphere for students and staff members.

Noise intensity readings were recorded from different locations within the college campus during the audit period to assess the existing sound levels. The observations indicated that the noise levels

within the campus were within permissible limits prescribed for educational institutions and silent zones. Lower noise levels were observed in the library and classroom areas, while slightly higher readings were recorded near the entrance and common activity zones during working hours.

NOISE INTENSITY READINGS

Sr. No.	Location	Noise Intensity (dB)	Permissible Limit (dB)
1	College Entrance Area	58 dB	50–60 dB
2	Administrative Office	50 dB	50 dB
3	Classroom Area	45 dB	50 dB
4	Library	40 dB	40–50 dB
5	Garden and Plantation Area	42 dB	50 dB
6	Corridor and Common Area	52 dB	50–60 dB

Overall, the Noise Audit 2025–2026 of Dr. H. N. Sinha Arts & Commerce College, Patur reflects the institution's commitment toward maintaining a calm, disciplined, and environmentally friendly campus atmosphere. The implementation of silent zone practices, awareness measures, plantation activities, and regular monitoring of noise levels demonstrates the college's dedication toward environmental protection and the creation of a healthy educational environment for students and staff members.

ENERGY AUDIT

Energy is an essential resource for the smooth functioning of educational institutions and plays a vital role in academic, administrative, and infrastructural activities. Proper management and conservation of energy are important for reducing operational costs and minimizing environmental impacts. An Energy Audit is a systematic process used to analyze energy consumption patterns, identify areas of energy loss, and recommend suitable measures for efficient energy utilization and conservation. The Energy Audit of Dr. H. N. Sinha Arts & Commerce College, Patur was conducted to evaluate the energy consumption practices and assess the implementation of energy-saving measures within the campus.

Dr. H. N. Sinha Arts & Commerce College, Patur has adopted several initiatives to promote energy conservation and environmental sustainability. The institution encourages the efficient use of electricity through awareness programs and responsible energy practices among students and staff members. Energy-efficient electrical appliances, LED lighting systems, and proper maintenance of electrical equipment help in reducing unnecessary energy consumption on the campus. The Energy Audit also aims to create awareness regarding energy conservation, reduce carbon emissions, and support sustainable development through the optimum utilization of available energy resources.

ENERGY AUDIT OBSERVATION

Energy is an essential resource required for the functioning of educational institutions and for carrying out academic, administrative, laboratory, and infrastructural activities. Although energy itself is invisible, its presence can be observed through its effects such as heat, light, sound, and mechanical power. Energy management is an important component of campus sustainability, as efficient utilization of energy resources helps reduce operational costs and minimizes environmental impacts. An Energy Audit is therefore an important tool used to assess energy consumption patterns, identify areas of energy loss, and recommend suitable measures for energy conservation and sustainable utilization.

This indicator includes various aspects related to energy usage such as electricity consumption, energy sources, monitoring systems, lighting arrangements, electrical appliances, and energy conservation practices adopted within the institution. Energy auditing mainly focuses on reducing unnecessary energy consumption and promoting energy-efficient technologies to minimize environmental degradation. For instance, a traditional incandescent bulb generally consumes between 60W and 100W of electricity, whereas an energy-efficient LED bulb consumes less than 10W while providing equivalent illumination. Hence, it becomes essential for environmentally responsible institutions to evaluate and improve their energy management systems through regular audits and awareness initiatives.

The Energy Audit of Dr. H. N. Sinha Arts & Commerce College, Patur was conducted to examine the pattern of electricity consumption and assess the implementation of energy conservation practices on the campus. The institution receives electricity supply from the local power grid, which is utilized for operating various electrical appliances and equipment required for academic and administrative activities. The college continuously encourages responsible energy usage and promotes awareness regarding energy conservation among students and staff members.

To reduce dependence on conventional electricity sources, the institution has installed a 05 kV capacity solar power system on the rooftops of the college buildings. The use of solar energy helps in reducing electricity consumption from the local power grid and contributes toward sustainable environmental management. The institution also promotes energy-saving practices through awareness programs, display boards, and proper monitoring of electrical equipment.

Computers available in offices, laboratories, libraries, and computer laboratories are maintained in standby mode with power-saving screensavers to reduce unnecessary electricity consumption. Signboards and posters encouraging users to switch off lights, fans, and other electrical appliances after use are displayed near classrooms, offices, and electrical switchboards. These awareness measures help in developing responsible attitudes toward electricity conservation among students and staff members.

The college campus uses various electrical appliances such as fans, tube lights, LED lights, printers, air conditioners, exhaust fans, street lights, computers, and refrigerators for educational and administrative purposes. Regular maintenance of electrical equipment is carried out to improve energy efficiency and reduce energy losses. The institution also encourages the gradual replacement of conventional electrical systems with energy-efficient alternatives to minimize electricity consumption and carbon emissions.

NUMBER OF ELECTRICAL APPLIANCES AVAILABLE ON CAMPUS

Sr. No.	Location	Fan	Tube Light	LED Light	Printer	AC	Exhaust Fan	Street Light	Computer	Refrigerator
1	Office	12	20	-	06	03	02	03	07	01
2	Classroom	18	18	-	-	-	-	-	-	-
3	Library	07	05	-	01	-	-	-	01	-
4	Laboratory	09	15	-	-	-	-	-	06	-
5	Computer Lab	03	02	01	01	-	-	-	40	-

The observations recorded during the Energy Audit reveal that the institution is actively working toward efficient energy utilization and sustainable energy management. The installation of rooftop solar panels, implementation of energy-saving practices, use of awareness signages, and maintenance of electrical appliances demonstrate the college's commitment toward environmental sustainability and responsible energy conservation practices.

SOLAR PLANT

Location – Above office

Installation Date –

08.08.2023 Capacity – 5

kv

Per month generation – 301 units

CONCLUSION

The Green, Environment, and Energy Audit 2025–2026 of Dr. H. N. Sinha Arts & Commerce College, Patur reflects the institution's strong commitment toward environmental sustainability, resource conservation, and the development of an eco-friendly campus environment. The audit indicates that the college has adopted several positive initiatives related to water conservation, energy management, solid waste management, greenery development, and pollution control practices. The institution continuously encourages environmental awareness and responsible behavior among students, teaching staff, and non-teaching staff members through various sustainable practices and campus activities.

The college campus maintains a healthy and green environment through plantation programs, gardening activities, proper waste management systems, and conservation measures. Rainwater harvesting, composting of biodegradable waste, paper reuse, paperless administrative practices, installation of solar panels, and energy-saving initiatives demonstrate the institution's dedication toward sustainable development. The use of well water and bore well water, along with periodic monitoring of drinking water quality, reflects proper water resource management within the campus.

The Energy Audit observations reveal that the institution is taking active measures to reduce electricity consumption through the use of rooftop solar panels, awareness signages, and responsible energy usage practices. Similarly, the Solid Waste Audit highlights proper waste segregation, composting practices, recycling activities, and systematic waste collection methods adopted by the institution. The Noise Audit also indicates that the campus maintains a peaceful academic atmosphere through silent zone practices, awareness measures, and plantation activities for noise reduction.

Overall, the audit findings confirm that Dr. H. N. Sinha Arts & Commerce College, Patur has successfully developed a clean, green, disciplined, and environmentally responsible campus environment. The institution's continuous efforts toward conservation of natural resources, pollution reduction, and environmental awareness contribute significantly toward sustainable campus development and ecological balance.

RECOMMENDATIONS

- Increase plantation and green campus activities to improve environmental quality and biodiversity conservation.
- Expand the use of LED lights and other energy-efficient electrical appliances across the campus.
- Enhance the capacity and utilization of rooftop solar energy systems to reduce dependence on conventional electricity sources.
- Continue and strengthen rainwater harvesting and water conservation practices within the institution.
- Conduct regular monitoring of drinking water quality and other environmental parameters to ensure safety and sustainability.
- Improve segregation, recycling, and proper disposal of solid waste, especially plastic and recyclable materials.
- Organize regular awareness programs, workshops, and campaigns on environmental conservation, energy saving, and waste management for students and staff.
- Promote paperless administration and digital communication systems to reduce paper consumption and printer-related waste.
- Maintain silent zone practices, campus cleanliness, and proper upkeep of gardens and green areas to support a healthy and eco-friendly academic environment.