

# **GREEN AUDIT REPORT**

## **(2018-2019)**

**Marathwada Legal and General Education Society's**  
**Manikchand Pahade Law College**  
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## Acknowledgement

*Green Audit Assessment Team thanks the Manikchand Pahade Law College for assigning this important work of Green Audit. We appreciate the cooperation extended to our team during the entire process.*

*Our special thanks are due to:*

- ❖ *Principal – Dr. Ch. N. V. Manikyala Rao*
- ❖ *Team of colleagues*

*For giving us necessary inputs to carry out this very vital exercise of Green Audit.*

*We are also thankful to Dr. Aparna Kottapalle (IQAC Co-ordinator), Shri. Jitendra Dangre (Incharge OS), Shri. A.D. Jadhav (NSS Programme Officer), Dr. J.R. Vyas (Librarian) and other staff members who were actively involved while collecting the data and conducting field measurements.*

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## **Executive Summary**

The rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institute which will lead for sustainable development.

Manikchand Pahade Law College, Aurangabad, is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reverse the trends. The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The methodology included: preparation and filling up of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. It works on the several facets of 'Green Campus' including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity. With this in mind, the specific objectives of the audit was to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the Departments are in compliance with the applicable regulations, policies and standards. It can make a tremendous impact on student health and learning college operational costs and the environment. The criteria, methods and recommendations used in the audit were based on the identified risks.

## 1. Introduction

Green Audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Green Audit' aims to analyse environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. It was initiated with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth of carrying out Green Audit.

Green audit is assigned to the criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India which declares the institutions as Grade A, B or C according to the scores assigned during the accreditation.

### 1.1 About the College

Manikchand Pahade Law College, Aurangabad is the oldest law college in Marathwada region. On the eve of the states re-organization prominent Advocates and educationist of Aurangabad took the lead for establishing "Marathwada Legal & General Education Society". Prominent amongst them were Mr. Govindbhai Shroff, Late H.G. Vaishnav, Adv. L. S. Kulkarni. The society was established with the mission to establish the law college in the region, as at that time the facility for higher education in general & legal education in particular was lacking. For taking legal education students had to run to places like Hyderabad, Nagpur, Pune and Mumbai etc.

The college is A Accredited by NAAC in the year 2013. The College is situated in heart of the city and has campus of 11 acres, which consist of class rooms, administrative buildings, hostel buildings, playground, auditorium, well equipped library, computer lab and language lab.

The College has two N.S.S. units sanctioned by the university, which are doing tremendous job through organizing activities like blood donations, tree plantations, health check-up, personality development etc. are conducted by this unit. The N.S.S. unit of the college adopted village Wadadgaon of Tq. Gangapur and Pimpri

Raja of Dist. Aurangabad in the year 2014. The campus is also selected for the Unnat Bharat Abhiyan by the Government of India in the year 2018.

Every year the College is organizing NSS camp for period of 10 days for taking up Awareness campaign, Sanitation, Tree Plantation, De-addiction, literacy, etc. with help of the villagers and concerned authorities.

## **2. Objectives of the Study**

The main objective of the green audit is to promote the Environment Management and Conservation in the College Campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

- To introduce and aware students to real concerns of environment and its Sustainability.
- To secure the environment and cut down the threats posed to human health by analysing the pattern and extent of resource use of the campus.
- To establish a baseline data to assess future sustainability by avoiding the interruptions in environment that are more difficult to handle and their corrections requiring high cost.
- To bring out a status report on environmental compliance.

## **3. Methodology**

In order to perform green audit, the methodology included different tools such as preparation of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. The study covered the following areas to summarise the present status of environment management in the campus:

- Water management
- Energy Conservation
- Waste management
- E-waste management
- Green area management

## 4. Observations and Recommendations

### 4.1 Water Use

This indicator addresses water consumption, water sources, irrigation, storm water, appliances and fixtures. A water audit is an on-site survey and assessment to determine the water use and hence improving the efficiency of its use.

#### a) Observations

The study observed that the Water tanker supply system, Tube well and Municipal connection are major sources of water in college and both the hostels. Water is used for drinking purpose, toilets and gardening. The waste water from the RO water purifier is used for gardening purpose. During the survey, no loss of water is observed, neither by any leakages, nor by over flow of water from overhead tanks. The data collected from all the departments is examined and verified. On an average the total use of water in the college is 29,000 L/day, which include 28,000 L/day for domestic, gardening purposes and 1,000 L/day for drinking purpose. Rain water harvesting units are also functional for recharging ground water level.



Figure 1-a) Water conservation through percolation



Figure 1-b) Inspection of Ground Water Recharge Pits

#### b) Recommendations

- In campus small scale/medium scale/ large scale reuse and recycle of water system is necessary.
- Minimize wastage of water and use of electricity during water filtration process, if used, such as RO filtration process and ensure that the equipment's used for such usage are regularly serviced.

- Ensure that all cleaning products used by college staff have a minimal detrimental impact on the environment, i.e. they are biodegradable and non-toxic, even where this exceeds the Control of Substances Hazardous to Health (COSHH) regulations.
- Gardens should be watered by using drip/sprinkler irrigation system to minimise water use.

#### 4.2 Energy Use and Conservation

This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliance, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment.

##### a) Observations

Energy source utilized by the campus is electricity only. Total average energy consumption is determined as 2814 KWH/month. The entire campus including common facility centres are equipped with LED lamps and LED tube lights, except at few locations. Besides this, photovoltaic cells are also installed in the campus as an alternate renewable source of energy. The Solar power generated is supplied to Maharashtra State Electrical Board. Computers are set to automatic power saving mode when not in use. Solar water heaters are installed in hostel buildings as to promote renewable energy. Also, campus administration runs switch-off drill on regular basis.



Figure 2-a) Photovoltaic Cell Panels



Figure 2-b) Photovoltaic Cell Control Unit

**b) Recommendations**

- In campus premises electricity should be shut down from main building supply after occupancy time, to prevent power loss due to eddy current.
- Support renewable and carbon-neutral electricity options on any energy purchasing consortium, with the aim of supplying all college properties with electricity that can be attributed to renewable and carbon-neutral sources.
- It is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity.
- Installation of LED lamps instead of CFL and replacing the old tube lights with the new LED tubes.
- 5–star rated Air Conditioners, Fans and CFLs should be used.
- Cleaning of tube-lights/bulbs to be done periodically, to remove dust over it.

**4.3 Waste Generation**

This indicator addresses waste production and disposal of different wastes like paper, food, plastic, biodegradable, construction, glass, dust etc. and recycling. Furthermore, solid waste often includes wasted material resources that could otherwise be channelled into better service through recycling, repair, and reuse. Solid waste generation and management is a burning issue. Unscientific handling of solid waste can create threats to everyone. The survey focused on volume, type and current management practice of solid waste generated in the campus.

**a) Observations**

Waste generation from tree droppings and lawn management is a major solid waste generated in the campus. The waste is segregated at source by providing separate dustbins for Bio-degradable and Plastic waste.

Single sided used papers reused for writing and printing in all departments and recently both side printing is carried out as per requirements. The waste generated by newspapers 300kg/year, magazine 280kg/year and of cartons is 20kg/year. Very less plastic waste (0.1Kg/day) is generated by the department, office, garden etc. but it is neither categorized at point source nor sent for

recycling. Metal waste and wooden waste is stored and given to authorized scrap agents for further processing.

The solid waste is collected by the municipal corporation and disposed by their methods.

**b) Recommendations**

- Reduce the absolute amount of waste that is produced from college staff offices.
- Make full use of all recycling facilities provided by City Municipality and private suppliers, including glass, cans, white, coloured and brown paper, plastic bottles, batteries, print cartridges, cardboard and furniture.
- Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated.
- Important and confidential papers after their validity to be sent for pulping.
- Vermicomposting should be adopted on at least 300 sq. ft. of land.

**4.4 E-Waste Generation**

E-waste can be described as consumer and business electronic equipment that is near or at the end of its useful life. This makes up about 5% of all municipal solid waste worldwide but is much more hazardous than other waste because electronic components contain cadmium, lead, mercury, and Polychlorinated biphenyls (PCBs) that can damage human health and the environment.

**a) Observations**

E-waste generated in the campus is very less in quantity. Administration conducts the awareness programmes regarding E-waste Management with the help of various departments. The E-waste and defective item from computer laboratory is being stored properly. The institution has decided to contact approved E-waste management and disposal facility in order to dispose E-waste in scientific manner.

**b) Recommendations**

- Recycle or safely dispose of white goods, computers and electrical appliances.

- Use reusable resources and containers and avoid unnecessary packaging where possible.
- Always purchase recycled resources where these are both suitable and available.

#### 4.5 Green Area

This includes the plants, greenery and sustainability of the campus to ensure that the buildings conform to green standards. This also helps in ensuring that the Environmental Policy is enacted, enforced and reviewed using various environmental awareness programmes.

##### a) Observations

Campus is located in the vicinity of many trees (species) to maintain the bio-diversity. Various tree plantation programs are being organized at college campus and surrounding villages through NSS (National Service Scheme) unit. This program helps in encouraging eco-friendly environment which provides pure oxygen within the institute and awareness among villagers. The plantation program includes various type of indigenous species of ornamental and medicinal wild plant species.

Seed bowls were prepared and planted by 430 members, including NSS unit and students of the college, on Sonery Mahal and Goga Baba tekdi. 95 saplings were planted in Drama Department of Dr. B.A.M. University.



Figure 3-Green Area



Figure 4-Tree Plantation by NSS Volunteers



Figure 5-NSS Volunteers



Figure 6-Tree Plantation by Management Members

#### b) Recommendations

- Review periodically the list of trees planted in the garden, allot numbers to the trees and keep records. Assign scientific names to the trees.
- Promote environmental awareness as a part of course work in various curricular areas, independent research projects, and community service.
- Create awareness of environmental sustainability and take actions to ensure environmental sustainability.
- Establish a College Environmental Committee that will hold responsibility for the enactment, enforcement and review of the Environmental Policy. The Environmental Committee shall be the source of advice and guidance to staff and students on how to implement this Policy.
- Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings.
- Celebrate every year 5<sup>th</sup> June as 'Environment Day' and plant trees on this day to make the campus more Green.
- Indoor plantation to inculcate interest in students, Bonsai can be planted in corridors to bond a relation with nature.
- Green library should be established.

## 5. Conclusions

Considering the fact that the institution is predominantly a law college, there is significant environmental research both by faculty and students. The environmental awareness initiatives are substantial. The installation of solar panels and rain water harvesting system are noteworthy. Besides, environmental awareness programmes initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of waste management using eco-friendly and scientific techniques. This may lead to the prosperous future in context of Green Campus & thus sustainable environment and community development.

As part of green audit of campus, we carried out the environmental monitoring of campus including Illumination and Ventilation of the class room. It was observed that Illumination and Ventilation is adequate considering natural light.



Figure 7-Ten Commandments of Sustainability