SUBMITTED TO:

Shahu Shikshan Sanstha, Pandharpur

NALANDA LAW COLLEGE

Gorai 2, Borivali west, near Mangal Murti Hospital,
Mumbai – 400091.

GREEN AUDIT REPORT

2022-2023

PREPARED BY

QUALITY CARE ALLIANCE

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QUALITY CARE ALLIANCE

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ENERGY AIR QUALITY WATER WASTE

INDEX

EXECUTIVE SUMMARY

Green auditing is an essential step to identify and determine whether the institutions practices are sustainable and ecological. Traditionally, we were upright and efficient users of natural resources. But over the period of time, excessive usage of resources like water, electricity, petrol, etc. have become habitual for everyone especially, in urban and semi-urban areas. It is actually the right time to check if we (our process) are consuming more than required resources? Whether we are using resources sensibly?

Green audit standardizes all such practices and provides an efficient way to use natural resources. In the time of climate change and resource exhaustion it is necessary to re-check the processes and convert it in to green and sustainable. Green audit provides an approach for it. It also increases overall awareness among the folks working in institution towards the eco-friendly environment.

This is the first attempt to conduct green audit of this College campus for fulfilment of NAAC criteria. This audit was mainly focused on greening indicators like consumption of energy in terms of electricity and fossil fuel, quality of soil, water usage, vegetation, waste management practices and carbon foot print of the campus. Initially a questionnaire was shared to know about the existing resources of the campus and resource consumption pattern of the students and staffs in the university.

CAMPUS INFORMATION

NALANDA LAW COLLEGE
Since 2002

Green Audit Report of NLC has been prepared by Quality Care Alliance based on review of findings of internal green & environmental audits conducted by College, desktop review of documents/records, virtual tour of the College campus and telephonic interviews of faculty, non-teaching staff & students.

The audit was conducted in **March 2023.**

The Green Audit Report also presents green initiatives followed and taken up by the College and provides suggestions and recommendations to improve environmental sustainability.

College campus consists of two buildings, one is operational and another is under construction. As the under- construction building is non-operational, it is not considered in the Green Audit Scope.

College building has classrooms, well-equipped laboratories, a library and an auditorium. College Sports ground has indoor and outdoor games facilities. There are 4 gardens in the campus including an herbal garden. The area details of the College building is presented in Table 1.

Table1: Facilities Details,

Floor	Facilities
Ground floor	Playground, parking for 2 wheeler & 4 wheeler, cricket and football turf, badminton court, water storage facility, washrooms for girls and boys, Principal cabin, Administrative office, Accounts office, Auditorium, Pantry, medical room, reception
First floor	Classrooms, staff room, boys common room, girls common room, NAAC (IQAC) room, girls washrooms, boys washroom.
Second floor	Computer lab, indoor games room
Third floor	Activity room
Fourth floor	Library, e- library
Fifth floor	
Terrace	Water storage & harvesting

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GREEN INITIATIVES BY CAMPUS

The premises were evaluated against various criterion by the National Assessment and Accreditation Council (NAAC). The major observations are.

- **Solid Waste Management**
  - Waste management is done by composting
  - One sided used paper is re-used for internal assessment and working.
  - There is ban on single use plastic and plastic crockery in the campus.

- **Tree Plantation Drives**
  - Six plantation drives were carried out in the current year in the Campus.
  - Plants survival rate is around 85%
  - Tulsi Van" initiated at CUG on 25th June 2021

- **Renewable Energy**
  - The college has a plan to install solar panels in future.
  - The quantity of plate waste {organic waste with higher starch contents) is negligible, consequently, there is no potential for biogas generation.
  - The plan has been proposed for Installing Compost pit.

- **Green Campus Initiative**
  - The movement of vehicles inside the campus is with vehicles of staff, faculties, students and guests are allowed to enter the campus. And, there is a provision for parking facility inside the campus.
  - There is restriction on the usage of plastic, which may be extended to minimization of usage of Single Use Plastic items in near future at campus.
  - The campus is surrounded by a lot of greenery, trees, and proper landscaping.

- **Environment & Energy Initiative**
  - The Institute has limited campus for green landscaping.
  - Small plants are planted in the compound.
  - In the periphery of the campus, along the rear and wings, a thick belt of large trees is planted to bring down noise and cut down dust storms.
  - Indoor plants can be potted along the corridors and entrance of the building.

- **Air Quality & Ventilation**
  - The class rooms and other area are well ventilated to ensure proper air quality.
  - The fans are appropriately installed to ensure proper air circulation
  - The indoor as well as outdoor plants have also been provided to improve the environment.

- **Lighting System**
  - The usage of natural light is optimized through well designed structure and windows
  - All the lamps are replaced with LED.
  - The switching of the lamps is done manually.

- **Water Quality & Conservation**
  - The water is supplied by the Corporation, which is a common practice in and in Mumbai.
  - Water purifiers & coolers are provided at convenient locations and on each floor.
  - The distribution network and piping are more or less satisfactory and adequate.

- **Waste Management**
  - The water is discharged into the common municipal drain, which is a common practice in Mumbai.
  - The organic waste is segregated and disposed of through municipal waste.
  - The electronic gadgets / waste is either donated if useful or handed over to waste collectors.
  - The general solid waste is disposed of through Municipal Corporation.

- **Air Conditioning System**
  - The Air Conditioners are operated as required with manual control. The operation is minimal, consequently automation may not be economical.
  - The room temperature is maintained at 24 to 25 °C, which is well within the recommended values.
  - The Air Conditioners are serviced regularly and properly maintained.
  - Most of the Air conditioners units are energy efficient with star ratings of 3 and above.

- **Infrastructure usage**

  - Ramps are provided on the ground floor to address the needs of differently able people.
  - The on-campus movement is distributed with multiple staircases.
  - There are adequate fire extinguishers located at key areas. The college has initiated appropriate measures to meet the safety requirement.
  - The draining system for washrooms is efficient and effective.
  - No seepage was observed in the building premises.

- **Green IT culture**
  - Energy efficient computers and laptops have been procured.
  - Electronic communication is encouraged to minimize usage of papers.
  - Most of the papers are reused for doubled sided printing to further minimize usage of paper

1. GREEN AUDIT – INTRODUCTION

1.1 Green Audit - An Effective Efforts towards Environment Sustainability & Energy Conservation

Modernization and industrialization are the two important outputs of the twentieth century that 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 with global issues like global warming, greenhouse effect, ozone depletion, 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 a sustainable environment.

Considering the present environmental problems of pollution and excessive use of natural resources, Honorable Prime Minister, Shri. Narendra Modiji has declared the Mission of Swachch Bharat Abhiyan. Also, University Grants Commission has mentioned the “Green Campus, Clean Campus" mission mandatory for all higher educational institutes. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent.

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

1.2 Why Green Audit

Green auditing is the process of identifying and determining whether an institution’s practices are eco-friendly and sustainable. Traditionally, we are good and efficient users of natural resources. However, 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 the 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 them into green and clean ones. The green audit provides an approach for it. It also increases overall consciousness among the people working in institutions towards an environment.

1.3 Goals of Green audit

College has conducted a green audit with specific goals as:

- Assess facility of different types of waste management.
- Increase environmental awareness throughout campus.
- Identification and documentation of green practices followed by university.
- Identify strengths and weaknesses in green practices.
- Conduct a survey to know the ground reality about green practices.
- Analyze and suggest solutions for problems identified from the survey.
- Identify and assess environmental risk.
- The long-term goal of the environmental audit program is to collect baseline data of environmental parameters and resolve environmental issues.
- To motivate staff for optimized sustainable use of available resources.

Objectives of Green audit

- To examine the current practices which can impact the environment such as resource utilization, waste management, etc.
- To prepare an Environmental Statement Report on green practices followed by different departments, support services, and administration building.
- To set goals, vision, and mission for Green practices on the campus.
- To identify and analyze significant environmental issues.
- To establish and implement Environmental Management Plan in various departments.
- To assess for better performance in green practices and its valuation.

1.4 About Criteria 7 of NAAC

Universities are playing a key role in the development of human resources worldwide. Higher education institutes campus run various activities with the aim to percolate the knowledge along with practical dimension among the society. Likewise, different technological solutions related to the environment are also provided by the higher education institutes. Different types of evolutionary methods are used to assess the problem concerning the environment. It includes Environmental Impact Assessment (EIA), Social Impact Assessment (SIA), Carbon Footprint Mapping, Green audit, etc.

National Assessment and Accreditation Council (NAAC) is a self-governing organization that rated the institutions according to the scores assigned at the time of accreditation of the institution. Green Audit has become a mandatory procedure for educational institutes under Criterion VII of NAAC. The intention of the green audits is to upgrade the environmental condition inside and around the institution. It is performed by considering environmental parameters like water and wastewater accounting, energy conservation, waste management, air, noise monitoring, etc. for making the institution eco-friendlier.

Students are the major strength of any academic institution. Practicing green action in any educational institution will inculcate the good habit of caring for natural resources in students. Many environmental activities like plantation and nurturing saplings and trees, Cleanliness drives, Bird watching camps, no vehicle day, Rainwater harvesting, etc. will make the students good citizens of the country. Through Green Audit, higher educational institutions can ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures.

1.5 Benefits of Green Audit to an Educational Institute

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

- It would help to protect the environment in and around the campus.
- Recognize the cost-saving methods through waste minimization and energy conservation.
- Empower the organization to frame a better environmental performance.
- It portrays a good image of the institution through its clean and green campus.
- More efficient resource management
- To create a green campus
- To enable waste management through reduction of waste generation, solid and waste
- To create plastic-free campus and evolve health consciousness among the stakeholder
- Recognize the cost-saving methods through waste minimizing and managing
- Authenticate conformity with the implemented laws
- Empower the organizations to frame a better environmental performance
- Enhance the alertness for environmental guidelines and duties
- Impart environmental education through systematic environmental management approach and Improving environmental standards
- Benchmarking for environmental protection initiatives
- Financial savings through a reduction in resource use
- Development of ownership, personal and social responsibility for the College and its environment
- Developing an environmental ethic and value systems in youngsters.
- Green auditing should become a valuable tool in the management and monitoring of environmental and sustainable development programs of the College.
- Finally, it will help to build a positive impression through green initiatives for the upcoming NAAC visit.

1.6 Role of Educational Institutions in India

Educational institutions are playing important role in a nation's growth and development which starts from maintenance of green campus without harming the environment. A clean and healthy environment in an Organization determine effective learning and provides a conducive learning environment to the students. Educational institutions are asked both Central and State Governments to give eco-friendly atmosphere to the stakeholders. In addition, all the Educational institutions are asked to save the environment for future generations and to solve the environmental problems such as recycling of solid wastes and wastewaters, plastics usage, napkin disposal water consumption, water harvesting and storage mechanisms, etc. through Environmental Education. Implementing Swachh Bharath Abhiyan Scheme launched by the Indian Government plays by the Educational institutions plays a major role in terms of giving neat and clean environment to tribal, rural and urban people across the country, besides, the regular and conventional activities carried out by Nature club, Eco club, Science club, Fine Arts club, Flora and Fauna club, You Red cross unit, etc. Seminar, Conference, Workshop, training and awareness programmes on Biodiversity conservation education, environmental awareness programmes, etc. may be conducted periodically by the Management and Administrative people of an Organization to the stakeholders.

Green campus auditing is a systematic process whereby an organization's environmental performance is checked against its environmental policies and compliances of the Government guidelines. This audit process is definitely useful for the Educational institutions to maintain the

campus neatly and can give pure atmosphere to the students and staff members including Management people. It is like an official examination of the environmental effects on an organization's campus as per the Government guidelines. The audit report may be useful to improve the organization's campus significantly by following the recommendations and suggestions given in the report.

1.7 Green Campus and Environment Policy

The green campus and environment policy aims to provide an education and awareness in a clean and green environment to the stakeholders with regards to environmental compliance. The scope of this policy applies to all employees and students of the Institution to provide an eco-friendly atmosphere. Policy making dealt with cleanliness on the campus is maintained through proper disposal of wastes and steps taken to recycle the biodegradable wastes. Utilization of eco-friendly supplies and an effective recycling programme to maintain the campus free from hazardous wastes. The concept of eco-friendly culture is disseminated among the students as well as rural community through various awareness programmes, seminars / conferences, reuse and recycle the waste materials. Attempts is made to limit energy usage and also replace non-renewable energy sources with renewable energy sources. The Head of the Organization, Department Heads and Senior Managers including Management Representatives are responsible for monitoring the go green initiatives of the College / College and maintain a clean/green campus. In addition, the staff and student volunteers from Nature club, Eco clubs, Science club, Fine Arts club, Youth Red cross unit, units are also responsible for the implementation of the green campus and environment policy in the Organization.

1.8 Environment Friendly Campus

The organization is responsible to provide an eco-friendly atmosphere to the stakeholders along with making good drinking water facility to the students and staff members. The organic manure, cow dung, farmyard manure and vermicompost for the cultivation of plants should be adopted. All non-compostable, single-use disposable plastic items, single-use plastic utensils, plastic straws and stirrers should be avoided. Education on the commitment to plastic-free alternatives for all incoming and current students, staff and faculty should be undertaken. Reduction of use of papers alternated with e-services and e-circulars, etc. and proper disposal of wastes, recycling and suitable waste management system should be taken into consideration.

1.9 Infrastructure & Safety

Movement on-campus (Distributed / non-distributed leading to crowds)

- The premises are provided with multiple staircases with necessary entrances to ensure quick and effective movement in normal as well as emergency situations.
- The movement of vehicles inside the campus is with vehicles of staff faculties, students and guests are not allowed to enter the campus.
- There is restriction on the usage of plastic, which may be extended to completely ban plastic usage inside the campus.

Firefighting & fire escape system:

There are efficient fire extinguishers in the premises, which are checked / refitted as per the suppurated frequency.

- The premise is provided with multiple staircases with requisite entrances to ensure quick and effective movement in emergency conditions.

Draining system:

- The drains from the washrooms and other areas are property collected and disposed

- **Seepage in the building:**
- The premise was visually inspected for seepage. No seepage was observed in any of the places.

Green Culture

- The LED / LCD monitors laptops have been procured which are efficient
- These monitors are not only energy efficient but also generate minimal heat and cut down on air conditioning load,
- Electronic communication is encouraged to minimize usage of papers.
- Most of the papers are reused for doubled-sided printing to further minimize usage of paper.
- The following steps may be initiated to further enhance the efficiency of the systems.
- An efficient power management system may be incorporated to
- Switch off the display if not in use.
- Put the computer in sleep / switch off the machines, if not used for prolonged periods.
- Optimize the brightness of the screen.
- Discourage use of screen savers, which has similar power consumption.
- Paper-less communication:
- The major internal as well as external communication is through electronic media.
- Re-using one sided paper for printing:
- It was observed that two sides printed on the back side of used paper in more than 80 % of the cases.
- Cellphone usage banned inside the campus.

2. GREEN AUDIT METHODOLOGY

2.1 Pre Audit Stage

A pre-audit meeting provided an opportunity to reinforce the scope and objectives of the audit and pre-audit discussions were held on the basis of green initiatives taken and the current scenario of the College campus. This meeting is an important prerequisite for the green audit because it is the first opportunity to understand the concerns. It was held with the concerned person of the College regarding initiatives taken by the College and regarding the last NAAC Green Audit conducted by the College. The meeting was an opportunity to gather the information that the audit team can study before arriving on the site. The audit protocol and audit plan were handed over at this meeting and discussed in advance of the audit itself. The pre-audit meeting was conducted successfully and necessary documents were collected directly from the College before the initiation of the audit processes. The actual planning of audit processes was discussed in the pre-audit meeting. An Audit team was also selected in this meeting with the help of staff and the College management. The audit protocol and audit plan were handed over at this meeting and discussed in advance of the audit itself.

2.2 Management Commitment

The Management of the College has shown a commitment towards green auditing during the pre-audit meeting. They were ready to encourage all green activities. It was decided to promote all activities that are environmentally friendly such as awareness programs on the environment, campus farming, planting more trees on the campus, etc., after the green auditing. The management of the College was willing to formulate policies based on a green auditing report.

2.3 Objectives of the study

A clean and healthy environment aids effective learning and provides a conducive learning environment. There are various efforts around the world to address environmental education issues. Green Audit is the most efficient and ecological way to manage environmental problems. It is a kind of professional care that is the responsibility of each individual who is part of economic, financial, social, environmental factors. It is necessary to conduct a green audit on a College campus because students become aware of the green audit, its advantages to saving the planet and they become social and responsible citizens of our country. Thus Green audit becomes necessary at the College level. The broad objectives are as follows.

- Diagnosing the environmental problems to eliminate them.
- Environmental education through a systematic environmental management approach.
- Improving environmental standards.
- Benchmarking for environmental protection initiatives.
- Efficient utilization of resources.
- Financial savings through a reduction in resource use.
- Curriculum enrichment through practical experience.
- Development of ownership, personal and social responsibility for the College and its environment.
- Developing environmental ethics and value systems in young people.
- Providing certain recommendations based on environmental audit reports.
- Ensuring compliance, not only with laws, regulations, and standards but also with company policies and the requirements of an Environmental Management System (EMS) standard.
- Enabling environmental problems and risks to be anticipated.
- To demonstrate that College is aware of its impact upon the environment.

2.4 Audit Phase

Green Audit was done with the help of co-associates involving different student groups, teaching, and non-teaching staff. The green audit began with the teams walking through all the different facilities at the College, determining the different types of appliances and utilities as well as measuring the usage per item (Watts indicated on the appliance or measuring water from a tap) and identifying the relevant consumption patterns (such as how often an appliance is used) and their impacts. The staff and learners were interviewed to get details of usage, frequency, or general characteristics of certain appliances. Data collection was done in the sectors such as Energy, Waste, Green Area, Carbon footprint, and Water use. College records and documents were verified several times to clarify the data received through surveys and discussions.

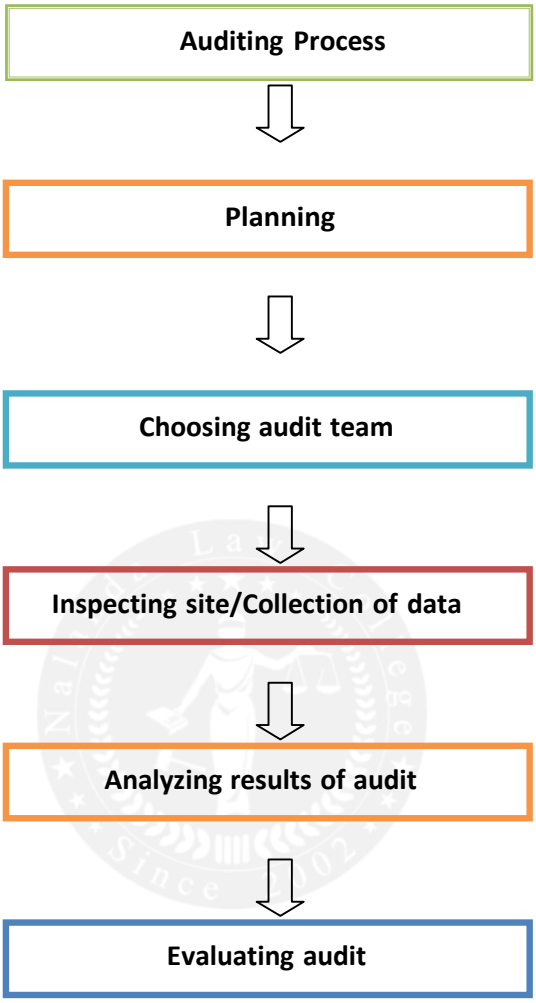
2.4.1 Methodology

The Management of the College has shown a commitment towards green auditing during the pre-audit meeting. They were ready to encourage all green activities. It was decided to promote all activities that are environmentally friendly such as awareness programs on the environment, campus farming, planting more trees on the campus, etc., after the green auditing. The management of the College was willing to formulate policies based on a green auditing report. In order to perform green audits, the methodology included different tools such as preparation of questionnaires, 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 summarize the present status of environmental management on the campus:

- Energy Management
- Water Management
- Waste Management
- Environment Management

2.4.2 Methodology – Step by Step

The audit process was carried out in three phases. At first, all the secondary data required for the study was collected from various sources, like concerned departments such as engineering cell, horticulture section, etc. A broad reference work was carried out to clear the idea of green auditing. Different case studies and methodologies were studied and the following methodology was adopted for the present audit. The methodology of the present study is based on onsite visits, personal observations, and questionnaires survey tools. Initially, based on data requirements, sets of questionnaires were prepared. The surveyors then visited all the departments of the College and the questionnaires were filled. The generated data is subsequently gathered and used for further analysis. From the outcome of the overall study, a final report is prepared.



2.4.3 Onsite Green Campus Audit activities

The opening meeting is the first step between the audit team and auditee. In this meeting, the purpose of the audit, the procedure is to be followed for the conduct of the audit, document verification and the time schedules were discussed in brief along the Management Representatives.

Site inspection is the second step for onsite activity. In this step, the Audit team members visited different sites in NLC College and sufficient photographs were taken then and there for preparing the audit report.

During the onsite phase of visit, it is vivid how the various facilities made by NLC College Management to the stakeholders without disturbing the landscape, natural topography and vegetation to ensure the green campus.

It is observed how the environment is protected in the campus and by what means an eco-friendly atmosphere is being given to the stakeholders. It is assessed the strengths and weaknesses of the Auditee's Management controls and risks associated with their failure in Green campus facilities were recorded.

Gathering audit evidence ie, collecting data and information from the auditee as per the audit protocol were carried out.

An exit meeting was conducted to explain the findings of the audit with the Management Representatives and staff members along with the audit team in brief.

2.5 Climatic conditions

Temperature begins increasing after March. April is the hottest month with near daily maximum temperature of 38.2°C and minimum of 25-26°C. The maximum and minimum temperature may go up to 37°C and 16°C; respectively. The average rainfall received in the Coimbatore district is 670 – 699 mm for the past 20 years. Due to the presence of the mountain pass major parts of the district from the south west monsoon in the months from June to August. The rainfall of the south west monsoon is irregular as the masses of clouds are intercepted only very little rain in September. After a warm, humid September, the regular monsoon starts from October lasting till early November. In October north east monsoon sets in heaviest rains are usually or the end of October and throughout November. Out of the total rainfall 25% is received during south west monsoon 49% during October and November and remaining 21% during September.
Annual rainfall is about 60-70 cm, although this rainfall is not enough to sustain the city for the entire year.

Soil edaphic and environmental parameters of NLC College

S.No	Details of Parameters	Data collected
Soil edaphic parameters		
1.	Soil pH	6.33
2.	Soil types	Red, sandy loam with glacial
3.	Total organic carbon	4.56
4.	Electrical conductivity	0.52-
5.	Water holding capacity	40.23%
6.	Total Nitrogen	3956 ppm
7.	Available Phosphorous	14.56 ppm
8.	Exchangeable Potassium	19.56 ppm
Environmental parameters		
1.	Minimum Temperature	16-22°C
2.	Maximum Temperature	25-37°C
3.	Minimum Relative humidity	66-80%
4.	Maximum Relative humidity	7-100%
5.	Annual Average Rainfall	60-70 cm
6.	Annual Average Sunshine	3-6 hrs/day
7.	Wind speed	15.2-17.8 km/h

2.6 Qualitative Measurements

S.No	Requirements and checklists of the audit	Conformity		
		Yes	No	NA
1.	Have internal Green campus audit procedures beendeveloped and implemented in the Organization?	□		
2.	Have programmes for the achievement of Green campus Objectives and targets been established and implementedas on today?	□		
3.	Whether Green campus audit and Environment audit are simultaneously carried out or separately carried out?	□		
4.	Whether Indian Biodiversity Act as per the Ministry ofEnvironment, Forests and Climate Change, New Delhi,Wildlife protection act and World & Indian Green Building Council concepts followed?	□		
5.	Have responsibilities been assigned for programmes ateach appropriate function and level? (Environmental Engineer & Agriculture Staff working for environment monitoring)	□		
6.	Are the following environmental aspects considered insufficient detail?			
	a. Drinking water / RO water / Borewell water / Openwell water / Pond water / Municipal or Corporation water use and to check quality of water throughPhysico-chemical properties analysis	□		
	b. Wastewater treatment facility	□		
	c. Sufficient number of trees, shrubs, herbs and lawns	□		
	d. Solid waste management facility	□		
	e. Availability of Biogas plant		□	
	f. Rain harvesting system, water reservoirs, etc	□		
	f. Aquarium and aquatic (hydrophytes) plants	□		
	g. Establishment of terrace garden, herbal garden,kitchen, zodiac, ornamental gardens, etc.	□		
	h. Natural Topography or Forest, Planted vegetation	□		
	i. Water well, Bore well, lake, water reservoir facility	□		
	j. Water consumption towards plant cultivation,hostel, machinery cleaning, transport, toilet use	□		
	k. Treated water consumption towards plant cultivation,machinery cleaning, transport, toilet use and etc.	□		
	l. Per capita water consumption per day calculated	□		
7.	Whether plants are tagged properly with their commonname and Botanical name for stakeholders?	□		
8.	Signing of MoU with Govt. and NGOs to disseminateGreen campus motto and pledge	□		

9.	Biodiversity conservation of plants, animals and wildlife, genetic resources (Endangered and endemicspecies) at each appropriate function and level?		□	
10.	Are any biofertilizers, organic manures, farmyard manures, vermicompost, green manures and chemicalfertilizers used for maintaining plants?	□		
11.	Establishment of herbal garden, zodiac garden, medicinal garden, kitchen garden, terrace garden and ornamental plants garden in the campus	□		
12.	Implementation of Government schemes (SwatchBharath Abhiyan under Clean India Mission)	□		
13.	Functioning of Nature club, Eco club, Cell, Forum, Association, bodies and Social Service League for students and staff members on biodiversity conservation, green campus development, etc.	□		
14.	Conduction of awareness programmes and cultural activities on global warming, environmental changes and ecosystem maintenance to the stakeholders	□		
15.	Conduction of outreach programmes for disseminationof green campus initiatives, natural resources, environmental pollution and biodiversity conservationto rural, tribal and urban people	□		
16.	Implementation of composting pits, vermicompost unit,recycling of kitchen wastes collected from Hostels, Kitchens, Housekeeping Labs, Training Restaurants and other places	□		
17.	Maintenance of plantations in the campus and stepstaken for water scarcity during summer season to maintain plants	□		
18.	Steps taken for organic, inorganic, toxic, e-waste,biomedical, food, sewage waste management, segregation of wastes and reuse methods	□		
19.	Public transport, low-emitting vehicles and control ofcar smokes and exhaust towards environment monitoring	□		
20.	Observation on the site preservation, soil erosion controland landscape management			□
21.	Projects and Dissertation works and Scholarly publications on environmental science and management carried out by students and staff members	□		
22.	Implementation of advanced methods for watering plantations (Drip irrigation, Sprinkler irrigation, etc.)	□		
23.	Use of metering for water utility, IoT based watering,automation, water device, remote water lines, etc.		□	
24.	Percentage of Organization's budget for environmentsustainability efforts	□		
25.	Campus facilities for disabled, special needs and ormaternity care including security, safety and health infrastructure facilities for stakeholder's wellbeing	□		

2.7 Quantitative Measurements

S. No.	Details of Plant and animal species	Numbers / Percentage
1.	Total number of Flowering plant speciesinside the Campus	65 species
2.	Total Number of medicinal species insidethe Campus	5 species
2.	Total number of Non-Flowering plantspecies inside the Campus	6 species
3.	Total number of living Mammals inside theCampus	5 species
4.	Total number of visiting Mammals insidethe Campus	5 species
5.	Total number of living Birds inside theCampus	7 species
6.	Total number of visiting Birds inside theCampus	5 species
7.	Total number of Grasshopper and Termites	Grasshopper: 4 species Termites: 2 species
8.	Total number of Ambhians and Reptiles	14 species
9.	Total number of Butterflies and Mosquitos	Butterflies : 11 speciesMosquitos: 02 species
10.	Percentage of Forest Vegetation	-
11.	Percentage of Planted Vegetation	55%

3. WATER & WASTE WATER AUDIT

Water is a precious natural national resource available with a fixed quantum. The availability of water is decreasing due to the increasing population of the nation; as per capita availability of utilized water is going down. Due to the ever-rising standard of living of people, industrialization, urbanization, demand for freshwater is increasing day by day. The unabated discharge of industrial effluent in the available water bodies is reducing the quality of these ample sources of water continuously. Hence, the national mission on water conservation was declared by the Honorable Prime Minister as 'Jal Shakti Abhiyan' and appealed to all citizens to collectively address the problem of water shortage, by conserving every drop of water and suggesting conducting water audits for all sectors of water use. Water audit can be defined as a qualitative and quantitative analysis of water consumption to identify means of reducing, reusing, and recycling water. Water Audit is nothing but an effective measure for minimizing losses, optimizing various uses, and thus enabling considerable conservation of water in the irrigation sector, domestic, power, and industrial sectors. A water audit is a technique or method which makes it possible to identify ways of conserving water by determining any inefficiency in the system of water distribution. The measurement of water losses due to different uses in the system or any utility is essential to implement water conservation measures in such an establishment.

Importance of Water Audit

- Systematic process
- May yield some surprising results
- Easier to work on solutions when the problems are identified.
- Attracting mechanism can be put into place.

It is observed that a number of factors like climate, culture, food habits, work and working conditions, level and type of development, and physiology determine the requirement of water. The community which has a population between 20,000 to 1, 00,000 requires 100 to 150 liters per person (capita) per day. The communities with a population over 1, 00,000 require 150 to 200 liters per person (capita) per day. As per the standards provided by WHO Regional Office for Southeast Asia Schools require 2 liters of water per student for drinking purposes; 10-15 liters per student for Water-flush toilets. Administration requires (Staff Accommodation not included) 50 liters per person per day,

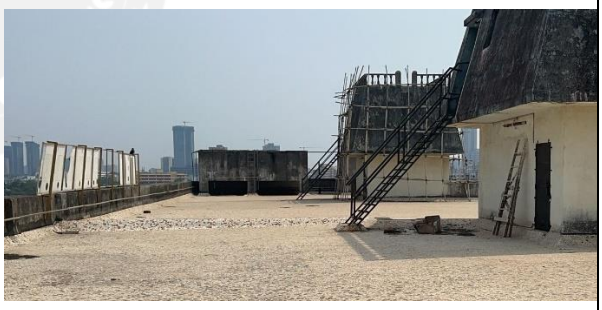
3.1 Water Audit

Water usage can be defined as water used for all activities which are carried out on campus from different water sources. This includes usage in all residential halls, academic buildings, on-campus, and on-grounds. Wastewater is referred to as the water which is transported off the campus. The wastewater includes sewerage, residence water used in cooking, showering, clothes washing as well as wastewater from chemical and biological laboratories which ultimately go down in the sink or drainage system.

College water resources

The major resource for the water in the College is a self-reliant water boring system installed on the campus. There are Ground Water Tube wells installed on the campus with 3x15 HP and 1x21 HP which operate to fill the 2 overhead tanks. To fulfill the need for the supply of the campus, overhead storage tanks are available with capacity (1x 350 Kilo Litres and 1x 300 Kilo Litres). Total building-wise discharge for the campus is 150 Kilo Litres for 8 hours per day.

- Mumbai Municipal Corporation (BMC) supplies water to the institute. BMC has installed water meters to monitor water consumption & for water charges. The charges are as per water consumption in the premises.
- Mops are used for floor cleaning.
- No leaking faucets were seen anywhere in washrooms
- If water leakage is observed, plumber is called immediately to attend to the complaints.
- Water conservation faucets in washrooms were not seen. Installation of such faucets can save water and will help in minimizing the water footprint of the institute.
- No signage emphasizing water conservation were found in the institute.
- Water conservation education lessons & programs are conducted for students and need to be done regularly.
- After college program, administrators and community groups need to be encouraged to conserve water in line with the college practices

	
Water Management System on campus	**Water Management System on campus**

Requirements for Educational Institutions

Filaments	Educational Institutions(Non-residential)	
	For boys	**For girls**
Water closets	1 per 40students	1per25students
Ablution taps	1 in each water-closet	1ineachwater-closet
	1 water tap with draining arrangement/50 students	
Urinals	1per 20students	
Washbasins	1per 60 students,minimum2	1per40students, minimum2
Baths	-	-
Drinking water fountains or taps	1per50students	1per50students
Cleaner's sinks	1perfloor, minimum	

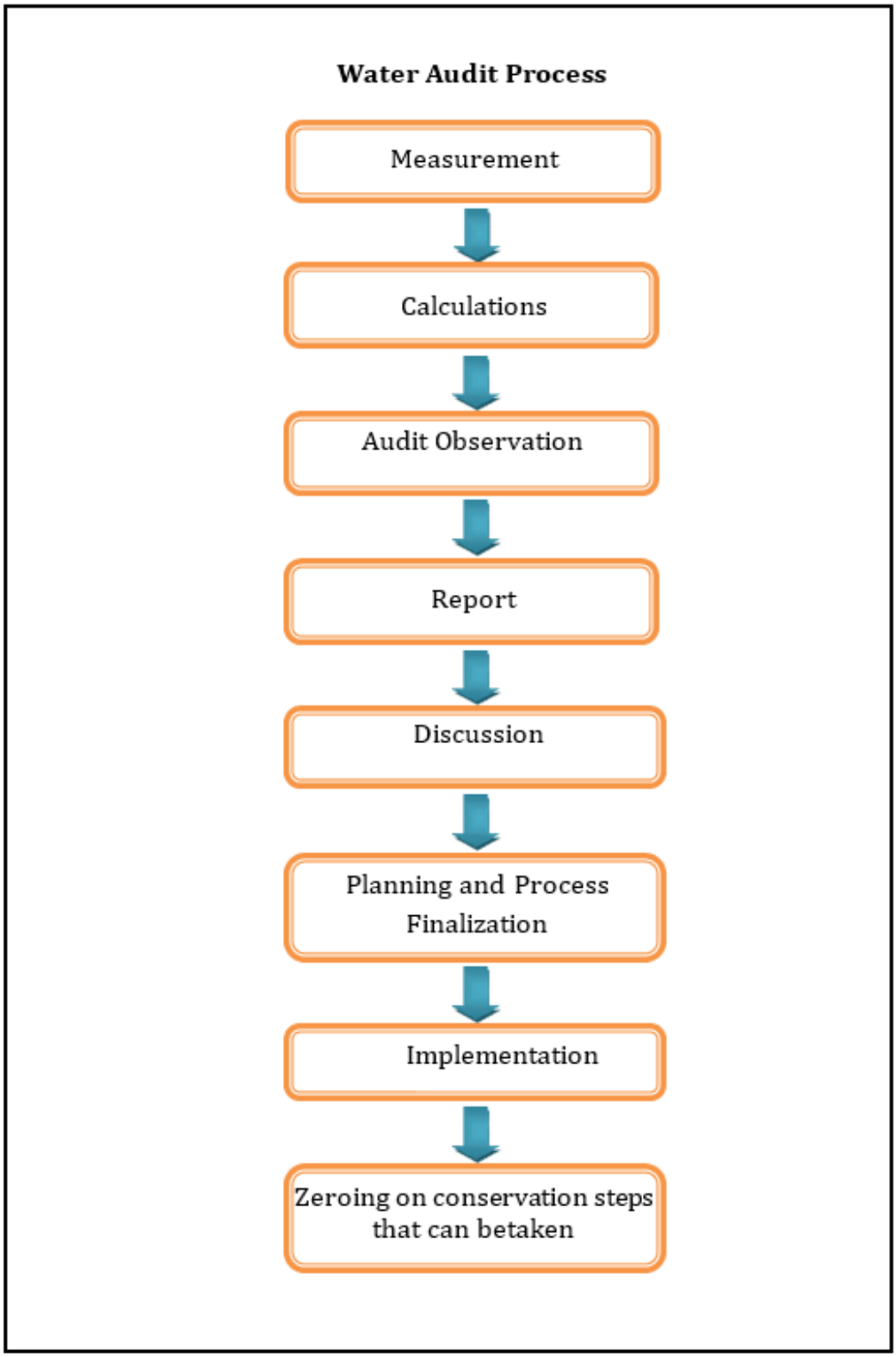
3.1.1 Water consumption in the College

Total consumption of the campus is approx. 980 Kilo Litres per day by operating discharge pumps with a total discharge capacity of 140 Kilo Litres for 8 hours per day. Out of this, 80,000 Litres were utilized against 2 number filtration units with 40,000 Litres capacity each for Kitchen and Park area. Balance 900 Kilo Litres of water is used to cover the total daily consumption in the College Campus including Drinking, Bathroom, Toilet, Garden, Urinals, Wash Basin, Laboratories etc. in the total population of 5500 (Including office staff, strength and residential buildings) of the College campus. Hence total approx. 160 Litres per day per head is used for Bathroom, Toilet, Garden, Urinals, Shower, Drinking, and Laboratories etc.

From the data collected for water audit of College, the water distribution and water consumption pattern is noticed as follows.

Yearly Average Water Consumption at College

Sr. No.	Sector	Total Daily Use (liter)	Total Monthly use (kl)	Total yearly use (kl)	Percentage %
1	Bathroom	192,864	5,785,921	69,431,040	19.68
2	Toilet	268,520	8,055,610	96,667,200	27.4
3	Garden	85,554	2,566,621	30,799,440	8.73
4	Urinals	65,758	1,972,741	23,672,880	6.71
5	Wash Basin	225,792	6,773,761	81,285,120	23.04
6	Laboratories	62,524	1,875,721	22,508,640	6.38
7	Shower	50,470	1,514,101	18,169,200	5.15
8	Drinking	27,832	834,961	10,019,520	2.84
9	Water loss during filling	490	14,701	176,400	0.05
10	Water loss at discharge	196	5,881	70,560	0.02
Total		**980,000**	**29,400,000**	**352,800,000**	**100**


Water Audit Process
Measurement
Calculations
Audit Observation
Report
Discussion
Planning and Process Finalization
Implementation
Zeroing on conservation steps that can betaken

3.1.2 Sustainable Water Practices Watershed Management Practices

NLC College has taken many initiatives in water conservation and management of water available on the campus. Now, the College is self-reliant through decentralized water conservation and management practices.

3.1.3 Waste Water Filtration Tank

The College has a huge campus with its administrative setup and there is a lot of waste water collected from laboratories and other open areas which are disposed of in the tank. College has constructed a Mini Water Filtration Tank on the campus. This filter house is used to filter the wastewater regularly. This water is utilized for further trees and plants in the College campus as self-filtered water throughout the year.

3.1.4 Rain Water Harvesting Units

The underground water table is decreasing day by day & minute by minute. The reason is that no attempt is made to replenish the groundwater table with rainwater during the monsoon & other rainy days. Rainwater harvesting is the simple collection or storing of water through scientific techniques from the areas where the rain falls. It involves the utilization of rainwater for domestic or agricultural purposes. The method of rainwater harvesting has been in practice since ancient times. It is as far the best possible way to conserve water and awaken society towards the importance of water. The method is simple and cost-effective too. It is especially beneficial in the areas, which face a scarcity of water. We can see that the People usually make complaints about the lack of water. During the monsoons, lots of water goes waste into the gutters. And this is when Rain Water Harvesting proves to be the most effective way to conserve water. We can collect the rainwater into the tanks and prevent it from flowing into drains and being wasted. It is practiced on a large scale in metropolitan cities. Rainwater harvesting comprises the storage of water and water recharging through the technical process. Currently, five numbers of rainwater harvesting exist on the campus further the College is planning to extend and install several units under rainwater harvesting mission including rooftop RWH installation at different buildings for the coming year which will be spread into the mass-scale which covers several units. These units will be utilized for further storing and reusing of natural water.

- Non-teaching staff or peons in the concerned section should take responsibility for monitoring the overflow of water tanks.
- Reduce chemical waste formation in the Chemistry laboratory; adopt the principles of green chemistry to reduce chemical waste.
- Pipes, overhead tanks, and plumbing systems should be maintained properly to reduce leakages and wastages of water.
- College should install its own Sewage Treatment Plant (STP). By doing so there will be a great reduction in water usage, as the water after treatment can be used for various purposes in the College.
- As College is already planning to set up multiple units of Rain Water Harvesting Units. To set up and install will certainly add value in order to meet the mission of water conservation.

4. SOLID WASTE AUDIT

Solid waste is the unwanted or useless solid material generated from human activities in a residential, industrial, or commercial area. Solid waste management reduces or eliminates the adverse impact on the environment and human health. A number of processes are involved inefficiently managing waste for an organization. It is necessary to manage the solid waste properly to reduce the load on the waste management system. Solid waste generation and its management is a burning issue in current days. The rate of generation of solid waste is very high and yet we do not have adequate technology to manage the generated waste. Unscientific handling of solid waste can create threats to public health and environmental safety issues. Thus, it is necessary to manage solid waste properly to reduce the load on the waste management system. The purpose of this audit is to find out the quantity, volume, type, and current management practice of solid waste generation in the NLC College campus. This report will help for further solid waste management and to go for green campus development.

5.1 Waste Management

Biodegradable Waste Management – Vermicomposting Unit

College has taken initiative for Biodegradable Waste Management to compost using processes like Dry & Wet Waste Management. Vermicomposting technology relies upon the conjoint action of earthworms and microorganisms to rapidly transform varied types of solid wastes. Considering the simplicity and flexibility of the technology, a vermicomposting unit was established in January 2009 in the College under the supervision of the Horticulture Section. The prime objectives are to recycle biodegradable waste fractions in a sustainable manner and curtail the cost of purchasing organic manure from the market for landscaping ventures. Presently, the unit is running successfully to fulfill the need for organic manure for plantation/gardening works of the College. So far, the ready-to-use vermicompost is produced entirely from garden waste (grass) and leaf litter of the campus.

Initiatives taken by the College for Waste Management

- Glass waste is generated from the laboratory mainly in the form of bottles; Many times bottles are reused for storing other chemicals.
- The e-waste generated at NLC College is sent for recycling and reuse.
- Hazardous waste generated in a solid and liquid state during experiments in the laboratory is disposed of properly.
- Biodegradable waste is a major solid waste generated on campus which is further treated by vermicompost technology.
- College has banned single-use of plastic for any administrative as well as other purposes.

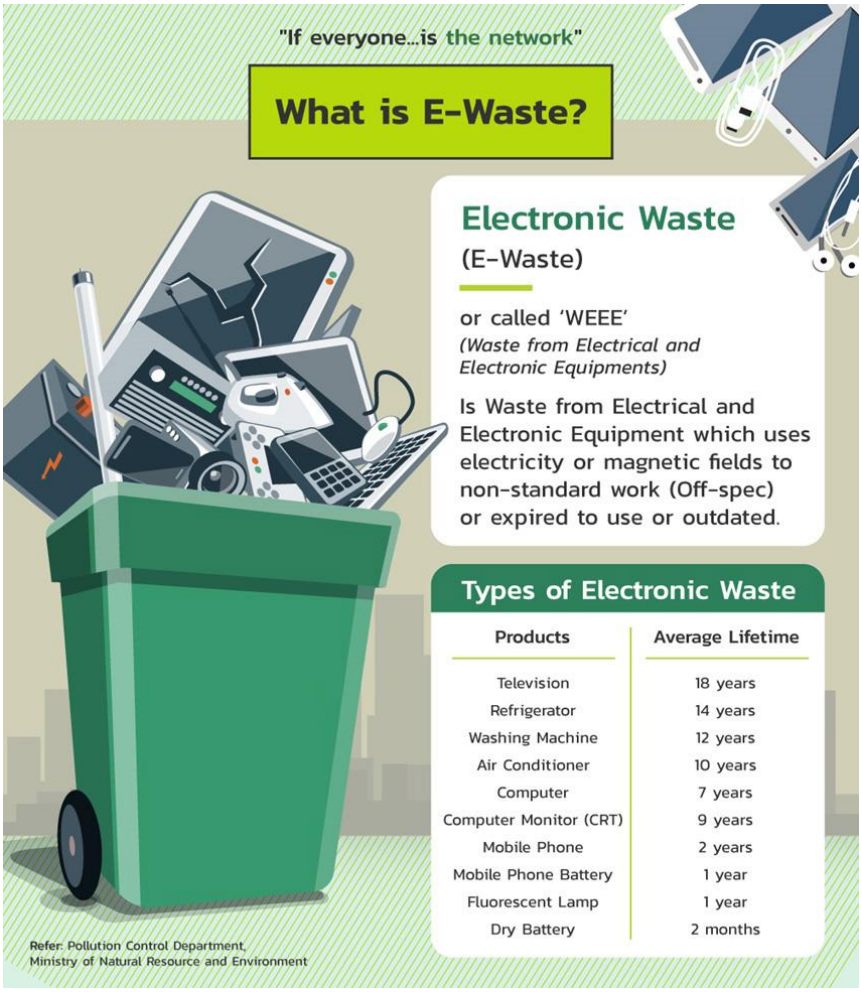
Recommendations

- Provision of installation of garbage unit should be introduced where the multilevel segregation of various wastes such as paper, construction, glass, metal scrap, and food waste should be done. Further various waste recycling plans for different types of waste should be introduced.
- Provision for E-waste management should be introduced in the College Campus.
- Paper waste like answer sheets, old bills, and confidential reports should be sent for shredding, pulping, and recycling after completion of their preservation period.
- Recycling facilities should be introduced and should be supported by City Municipality and private suppliers, including glass, cans, white, colored, and brown paper, plastic bottles, batteries, print cartridges, cardboard, and furniture.

6. E-WASTE MANAGEMENT

The global E-Waste Monitor Report estimates that 53.6 million metric tonnes of e-waste were generated globally in 2019, while in India, around 10.14 lakh tonnes of e-waste were generated in 2019-20 according to The Central Pollution Control Board report. However, the disposal of e-waste without proper management or treatment can have severe consequences for the environment and human health. Toxic chemicals such as lithium, mercury, nickel, arsenic, selenium, and lead can leach into the soil or water bodies, causing damage to the ecosystem.

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



E-waste generated in the campus is of minimal quantity. It is being effectively managed, keeping in mind the environmental hazards that may arise if not disposed properly.

The cartridges of laser printers are refilled outside the college campus. Awareness programme was conducted by college regarding E-waste Management. The E-wastes and defective items from computer laboratories are being stored properly and recycled in effective Manner.

The dismantled hardware of personal computers are used in PC trouble shooting lab. The dismantled electronic spare parts are immediately sold for reuse. The minimal amount of e-waste that is generated is taken by external vendor.

E-waste management in the campus

E - Communication

The principal's office, all the Departments of the college, Examination cell, and laboratories are very well connected with a good and efficient LAN network. Hence all the inter office correspondence is done through email. This reduces the usage of papers.

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Borivali (west),
Mumbai - 400 091

7. List of Environmental Promotional Activities

Academic Year 2022 -2023

List of Environmental Promotion Activities

Sr.No.	Date	Title of event	Department	photos
1	23-09-2021	**Ganpati Emersion**	COMMUNITY WORK	
2	04-08-20222	**Swachh Bharat Abhiyaan (Beach Cleaning)**	Law SECOND YEAR	
3	01-09-2022	**Tree Plantation**	Community Work	
4	04-12-2022	**Swach Sagar**	Community work	

5	05-09-2022	**Green Marketing trends**	Community work	
6	10-01-2023	**Poster making activity on Environmental sustainability**	BA-LLB	
8	21-06-2023	**Yoga Day**	BA-LLB	
9	14-02-2023	**Mediation camp**	LLB FIRST YEAR	

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	08-03-2023	**Awareness on Trees Plantation and maintenance**	LLB FIRST YEAR	

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8. CARBON FOOTPRINTS

Carbon is the basis of life on mother Earth. It is incorporated into the plants through photosynthesis, consumed by animal species through the food, present in the form of carbon dioxide (CO2) in the atmosphere, locked into the rocks like limestone, and compressed into the different fossil fuels such as coal and oil. As CO2 levels in the atmosphere continue to increase, most climate designs or projects that the oceans of the world and trees will keep soaking up more than half of CO2. The plants on land and in the sea, taken up carbon 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. At the start of the 21st century, we 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 principal component causing global warming..

Carbon Sequestration:

Carbon sequestration is the removal of carbon dioxide from the air by plants. Carbon storage is the amount of carbon already bound up in the parts of woody vegetation.

- Thirteen big trees and some small plants are planted to mitigate CO2 emissions and have the potential to enhance carbon sequestration capacity on the campus.

CARBON SEQUESTRATION							
Tree Name	**Botanical Name**	**Wood Density (gm/cm3)**	**Height(cm)**	**Girth (cm)**	**Canopy (cm)**	**Total Biomass (gms**	**Total carbon sequestration kg/y**
Coconut tree	*Cocos Nucifera*	0.6	1000	85	400	384144	**192**
Rain tree	*Samaneasaman* (Jacq.)Merrill	0.45	10	1.65	9	569422	**284**
Gulmohar	*DelonixRegia*	0.59	6	0.89	3	281296	**140**
Pimpal	*Ficusreligiosa* Linn.	0.44	8	1.45	9	556827	**278**
Amba	*Mangifera indica*Linn.	0.52	8	1.3	6	806313	**403**
Champa	Magnolia champaca	0.58	5	0.86	6	215167	**107**
Jaswand	**Hibiscus rosa**	**0.52**	**8**	**0.89**	**6**	**330563**	**165**

Calculation of Carbon Sequestration:

Volume of Tree = 3.14* r * H (r: radius of girth, H : Total height) AGB= Above ground level biomass (Volume x wood density of tree) BGB= Below ground level biomass (50 % of AGB)

Total dry biomass = AGB+BGB

Carbon Sequestration = Biomass x 50%

8.1 Carbon foot prints

In today's world, one of the biggest issues faced by all of us is global warming. Global warming refers to an increase in the average global temperature of mother Earth. The main cause of global warming is an increase in the concentration of greenhouse gases (GHGs) in the atmosphere due to anthropogenic activities and their level is determined with the help of global warming potential (GWP) and expressed as Carbon Footprint (CF). Carbon Footprint is another phenomenon used for GHGs or carbon dioxide emission in terms of CO2 equivalents. There are various definitions of carbon footprint are in literature. But the most recognized definition given by Wiedmann is “the Carbon footprint is the measure of carbon dioxide emissions directly or indirectly caused by an activity or accumulated over the life stages of a product.” In other words, “A carbon footprint is the total greenhouse gas (GHG) emissions caused directly and indirectly by an individual, organization, event or product.”

As NLC College is considered an institutional organization, various energy resources like electricity, solar rooftop systems are used. It is necessary to calculate the carbon footprint of the College to upgrade the Clean Developmental Mechanism (CDM) in various processes. All the data from the various sources were collected from all the sectors where energy resources are used. The collected data is calculated by using standard emission factors.

Efforts for Carbon Neutrality

Air pollution is a matter of serious concern on the campus owing to its urban location. NLC College as a responsible institution understands the importance of its carbon footprint and developed a plan to reduce greenhouse gas emissions in all its activities. Strictly ban on burning of dried leaves and waste paper in College.

Electricity carbon footprint

In the College, electricity is used for various purposes like residential, office use, and laboratories. The total electricity used in the College liberates mass kg of CO2 per year. The laboratory equipment consumes the highest electricity which emits a large amount of carbon CO2 per year. The solar panels are installed on the roof of various buildings produce electricity from solar panels which further saves ample mass of CO2 per year.

Paper footprint

The papers are used in the institution for various purposes like exam answer sheets, circulars, notices, office work, etc. The papers are responsible for the emission of CO2. The College used a total used 1,765.17 reams of paper which emits 3.67 tons of CO2. On the College campus, various departments follow paperless methods of communication to reduce the footprint by the use of papers. The various sections on the campus save 13, 48,914 papers per year i.e. 2,697 reams. The paperless work reduces approximately 5.61tons of CO2 approximately. A total of 2.80 tons of biomass is saved by paperless communication i.e. green computing.

The total footprint of the College

The total footprint is the addition of all the footprints and it is expressed as tons of CO2 per year. The total footprint of NLC College is approx. more than 10,000 tons of CO2 per year approximately. As the College is following the Clean Developmental Mechanism to reduce the emission of CO2 and greenhouse emission by using solar panels for electricity generation and minimize the paperwork at the College reduces of 18.10 tons of CO2 per year approximately.

CONCLUSION

India's CO2 emission is increased by an estimated 4.6 % in 2017, despite a turbulent year for its economy. The carbon footprint of the nation is measured per person; India's emissions are still very low – at only 1.8 tons of CO2 per capita which is much lower than the world average of 4.2 tons. But those emissions have been increasing steadily, with an average growth rate over the past decade of 6 %. The universities are the organizations which are having large areas which consume high quantities of electricity and LPG for many purposes. The present Clean Development Mechanism practices to reduce the more CO2 per year approximately.

Recommendations

- The food waste generated from College hostel mess, guest house, and staff quarters should be converted into biogas which can be further utilized for hostel kitchens.
- The solar battery-operated vehicles should be used on the campus to overcome the vehicle footprint.
- Green computing or E- work is helping the organization to reduce footprint very effectively.
- The solar energy-based street lamps on campus will reduce carbon footprint.
- The awareness should be made among the faculty, students, and other employees regarding Clean Development Mechanism (CDM) to reduce the consumption of electricity and natural resources.
- “Carbon Sequestration” survey should be conducted on the campus. Carbon sequestration is a process of converting atmospheric carbon i.e. CO2 into other sinks of carbon such as vegetation, soil, ocean, etc. in various forms to mitigate global warming audit is one of the important clauses of the Kyoto Protocol.

9. GREEN INITIATIVES

College is located in the area which is one of the important wilder areas of Tezpur city with its precious biodiversity. It covers an area of about 262 acres. The major portion is covered with vegetation. The College aims to protect and conserve its biodiversity, fresh and clean ambiance through many initiatives. The College has taken the following green initiatives to protect and conserve nature.

Plantation and Nurturing Programme

Many plantation drives are taken by the College on its campus. Every year on 5th June i.e. World Environment Day, the College takes Plantation activity. Under 33 Crore tree plantation scheme of Government. College has taken many plantation drives. The Horticulture Section looks after tree plantation activities. The trees are watered by students of various Departments. They nurture these trees throughout the year. Students of various departments and students make the plantation and nurturing program successful. A total of 23 plant saplings of different species (like ornamental, fruit and medicinal plant, etc.) were planted in various sites of the College campus during this year's environment day program.

Green computing practice

Being an academic institution, papers are used for various purposes like exam answer sheets, circulars, notices, office work, document printing, and Xeroxing. Since the trees are cut for paper manufacturing, the sequestration of carbon is reduced increasing carbon footprint. To cut down the carbon footprint, the College administration and various departments follow paperless methods of communication by using emails, online forms submission, etc. The paperless work was helpful in reducing tons of CO2. The tons of biomass are saved by this green computing practice.

Conferences and workshops on Environmental Sustainability

College organizes Conferences and Workshops based on the theme of environmental sustainability.

Green Audit is one of the important tools to check the balance of natural resources and their judicial use. Green auditing is the process of identifying and determining whether institutional practices are eco-friendly and sustainable. It is a process of regular identification, quantification, documenting, reporting and monitoring of environmentally important components in a specified area. The main objective to carry out a green audit is to check the green practices followed by the College and to conduct a well-defined audit report to understand whether the College is on the track of sustainable development. After completing the audit procedure of the College for green practices, there are the following conclusions, recommendations, and Environmental Management Plan(EMP) which can be followed by the College in the future for keeping campus environment friendly.

- College takes efforts to dispose of majority of waste by proper methods. Green computing i.e. Online payment systems, online circulars, and examination procedures are helpful for reducing the use of papers and ultimately reducing carbon footprint.
- Reducing the use of one-time use plastic bottles, cups, folders, pens, bouquets,

decorative items will be useful to solve the problem of plastic pollution to some extent.
- Biodegradable waste is used efficiently for composting and vermicomposting.
- Use of LED lamps and Tube Lights is to be encouraged.
- Toilets and bathrooms are consuming more water in the departments. The replacement of old taps can be beneficial for solving this issue
- The use of electric cars on the campus is a good initiative to save fuel.
- The overall ambient air quality on the campus is good while some air quality issues that may arise due to developmental activities on the campus should be addressed. The sound levels on the campus are good.
- Science departments are following the principles of Green Chemistry to reduce chemical waste.

Key Recommendations & Environment Management Plan (EMP)

Following are some of the key recommendations for improving the campus environment and to be considered as Environment Management Plan (EMP).

- An environmental policy document has to be prepared with all the recommendations and current practices carried by the College.
- A frequent visit should be conducted to ensure that the generated waste is measured, monitored, and recorded regularly and information should be made available to the administration.
- The College should develop internal procedures to ensure its compliance with environmental legislation and responsibility should be fixed to carry out it in practice.
- The solid waste should be reused or recycled at maximum possible places.
- Installation of sensor-based electrification items like fans, lights, etc. can save electricity
- Installation of solar panels and rainwater harvesting system to every terrace of the building will be useful in conserving the natural resources.
- Regular checkups and maintenance of pipes, overhead tanks, and plumbing systems should be done by the engineering section to reduce overflow, leakages, and corrosions.
- Science laboratories large amount of water goes waste during the process of making distilled water; the system should develop to reuse this water for other purposes. The solar distillation unit is installed at the earliest.
- No such processes or activities were observed at NLC College which can deteriorate the environmental quality.
- The said College is in continuous efforts to spread the environmental awareness programs among staff and students.
- It was also observed that the said College is keeping the environmental quality at priority in every developmental stage.

10. GREEN IMPROVEMENT STEPS

OBSERVATIONS AND RECOMMENDATIONS

GREEN CAMPUS AUDIT

OBSERVATIONS

- College has proposed several green initiatives such as rainwater harvesting, solar PV system which help in promoting sustainability. College should develop monitoring mechanism and generate & maintain the performance records of the green infrastructure.

a) Reduce, Reuse and re cycle of the products(At the time of disposal of library material)
b) Recycling beyond books i.e. .paper, aluminums, plastic, e-waste
c) College has 10+ trees, shrubs and potted plants present in the campus.
d) Good no. of trees around the College campus which maintain the CO2 sequencing.
e) Buildings are specifically designed with wide windows and wide passages to utilize sunlight, and for ventilation.
f) Donation of computers to NGO' store furbish and give it to needy people.
g) Solid waste generated in campus includes paper waste, E-waste, plastic waste, food waste from and dry recyclable waste from gardening. Paper waste and E-waste are given to approve agencies for recycle/ disposal. Inventories & management processes of all waste (including food and dry recyclable waste) should be well documented.

SUGGESTION:

a) Indoor College campus greenery and plantation can be increased within the premises, which will improve beautification and green health of college campus.
b) College can establish an 'Eco Club' and 'Garden Committee' in which students and staff arrange different environmental activities such as guest lectures, conferences, cleanliness drives etc.
c) Water consumption can be reduced further through various conservation methods. Replacement of all old water faucets with water saving faucets such as prismatic taps, aerator taps, and jet sprays etc. can save water and help in minimizing the water footprint.
d) Vertical gardening can be done using indoor plants. Hydroponic garden can be an option where in small space also plants can be planted. Drip irrigation system can be provided for plants.
e) Signage regarding water conservation, reduction & segregation of plastic waste, reduction in food waste, waste segregation can be put up in kitchen, dining areas and near drinking water facilities to create awareness among staff and students.
f) Digitization will help increase green environment.

INDOOR GARDENING

Indoor plants are commonly used for their aesthetics benefits but they also have vital role reducing airborne pollution. The right choice of plants can be an excellent way of improving indoor air quality and general health. Local and scape contractor can be contacted or supply and rotation of these plants. Volatile organic compounds (VOCs) – VOCs are emitted by paints and lacquers, paint strippers, pesticides, office equipment such as copiers and printers, correction fluids and carbonless copy paper, graphics and craft materials including glues and adhesives, permanent markers, and photographic solutions etc.

Plants	VOC it removes	Indoor source of VOC's	Plant care
 **Aloe Vera**	Formaldehyde, Trichloroethylene and Benzene	Chemical based cleaners and paints	Easy to grow with enough sunlight
 **Bamboo Plant**	Formaldehyde, Trichloroethylene and Benzene	Paints, Plastics, Wood products etc.	Thrives under lowlight conditions aswell as easy to maintain
 **Chinese Evergreen**	Benzene	Paints	Low maintenance plant that prefers low light conditions.
 **English Ivy**	Formaldehyde, Benzene, Air borne fecal matter particles	Wood, Paper products, Air borne fecal – matter particles from pests	Easy to maintain

 **Janet Craig**	Formaldehyde, Benzene and Trichloroethylene	Paints, Plastics, Wood products etc.	Medium to low light tolerant plant. Requires little water for growth.
 **Golden Pothos or Devils Ivy**	Formaldehyde, Cleanses air	Exhaust fumes, carpeting materials, paneling and furniture products made with particle board	Extremely easy to maintain under low to bright light conditions. Fast growing and grows well under Fluorescent light.
 **Mass Cane**	Formaldehyde, benzene and trichloroethylene	Paints, Plastics, Wood products etc.	Medium to low light tolerant plant. Requires little water for growth.
 **Snake plant**	Formaldehyde and trichloroethylene	cooking fuels, wood products, facial tissues, personal care products and waxed papers	Drought resistant and Tolerates a variety Of light conditions. Hard to damage or kill.
 **Peace Lily**	Formaldehyde, benzene and trichloroethylene	Paints, Plastics, Wood products etc.	Relatively easy to maintain. Survives in low light conditions.

 **Red-edged Dracaena**	Formaldehyde and trichloroethylene	cooking fuels, wood products, facial tissues, personal care products and waxed papers	Drought resistant and Tolerates a variety of light conditions. Hard to damage or kill.
 **Spider Plant**	Formaldehyde, benzene, carbon monoxide and xylene	cooking fuels, wood products, Printing	Easy to maintain under medium to bright light condition.
 **Parlor Palm**	Purifies indoor air	-	Easy to maintain

SHAHU SHIKSAHN SANSTHA'S (PANDHARPURI) NALANDA LAW COLLEGE MUMBAI 400 092.

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Borivali (west),
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CERTIFICATES

Consultancy & Services

Cert. No.: QA-GAC-22-23/062

Green Audit Certificate

This is to certify that

NALANDA LAW COLLEGE

Gorai 2, Borivali west, Mumbai – 400091. Maharashtra

has successfully undergone the "Green Audit" during the period of May to July 2022 under our supervision and the efforts taken by the management and the faculty towards the green campus are highly appreciable.

Certificate issued on : 10-May-2023

Project Head & Green Building Consultant
QUALITY CARE ALLIANCE
www.qualitycare.net.in I qualitycare.in@gmail.com

An Environment and Energy Consultancy developing healthy and sustainable Environment

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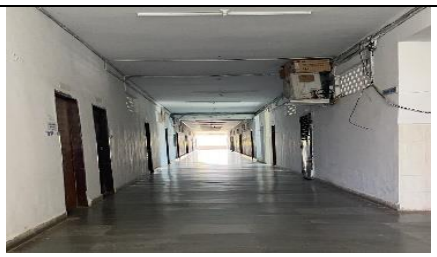
CAMPUS PHOTOS

Photographs of Physical facilities			
Sr. No	Description	Geotag Photo	floor
	Corridors - 1		Ground floor
	Corridors - 2		First floor
	Corridors - 3		Second floor
	Corridors - 4		Third floor
	Corridors - 5		Fourth floor

	Medical room		
	Pantry		

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Geotag Photographs of Physical facilities		
Sr. No	**Description**	**Geotag Photo**
	Girls washroom	
	Girls washroom	
	Boys washroom	
	Boys washroom	

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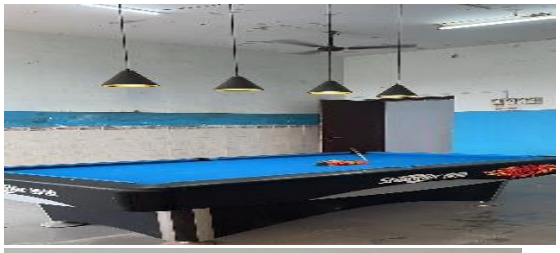
Geotag Photographs of Physical facilities			
SR NO	**DESCRIPTION**	**GEOTAG PHOTO**	**Floor**
	Indoor Games	 	**Second floor**
	Activity Room		**Third floor**
	Yoga Centre		**Ground floor**

****** END OF THE REPORT*******

THANK YOU!!!

Think GREEN

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RECYCLE

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- Office Paper
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- Aluminum Cans
- Metal Cans
- Plastic Beverage Bottle

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- Styrofoam products
- Plastic bags and wraps
- Disposable coffee cups
- Hazardous waste
- Clothing and textiles
- Food waste

Recycling is an easy and effective way to help protect our planet. By recycling materials like paper, glass, and plastic, we can reduce the amount of waste that ends up in landfills and conserve natural resources.

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