

GREEN AUDIT REPORT

GRAMIN TECHNICAL AND MANAGEMENT CAMPUS VISHNUPURI, NANDED.



Go Green



Go Green



Year 2023

CHAPTER 1

INTRODUCTION

1.1 Green Audit - An Effective tool 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, Gramin Technical and Management Campus 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 and 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 in Gramin Technical and Management Campus

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 the min to 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

Gramin Technical and Management Campus have conducted a green audit with specific goals as:

- Assess facility of different types of water management.
- Increase environmental awareness throughout campus.
- 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 and students to optimized sustainable use of available resources.

1.4 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.

1.5 Benefits of Green Audit to Gramin Technical and Management Campus.

There are many advantages of green audit as given below.

- 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.
- 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 stake holder
- 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 institute and its environment
- Developing an environmental ethic and value systems in youngsters.

CHAPTER 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 institute 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 institute regarding initiatives taken by. 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 institute 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 institute 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

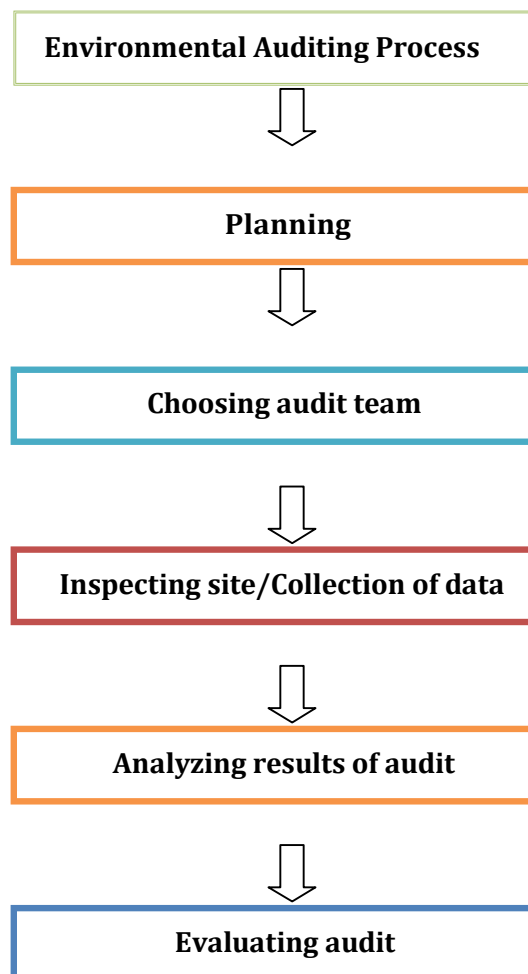
The Management of the institute has shown a commitment towards green auditing during the pre-audit meeting. They were ready to encourage all green activities. It was decided to promote all activities that are environmentally friendly such as awareness programs on the environment, campus farming, planting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

2.3 Methodology

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awareness programs on the environment, campus farming, planting more trees on the campus, etc., after the green auditing. The management of the institute 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:

- Water Management
- Energy Management
- Waste Management
- Green area and Environment Management



CHAPTER 3

GREEN AUDIT WORK

3.1 Members of the Committee

Sr.No	Name	Designation	Work Allotted in Committee
1	Dr.V.S.Pawar	Principal	Chairman of the Committee
2	Mr.S.S.Deolgaonkar	Vice-Principal	Secretary of the Committee
3	Mr.S.G.Kawathekar	Head,Civil Engineering	Committee Member
4	Mr.M.S.Landge	Head,Electrical Engineering	Committee Member
5	Dr.N.V.Alandkar	Asso.Professor	Committee Member
6	Mr.Yeshwant Mokhede	NSS Coordinator	Committee Member
7	Adv.Santosh Maid	Advocate	Legal Adviser
8	Sudam Gangadhar Kamble	Students Representative - Boys	Member
9	Anjali Subramaniyam Maiya	Students Representative - Girl	Member

Above said members with the help of all faculties and students carried out the Green audit work.

3.2 Observations and Recommendations

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- Energy conservation
- Waste management

- Green area management

3.3 Water Management

3.3.1 Water Use: This indicator addresses water consumption, water sources, irrigation, 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.

3.3.2 Observations: The study observed that, Water supply for toilets, laboratories and gardening purpose will be available from underground bore and well. For drinking water college has reverse osmosis steel water purifier plant. The purifier has 500L/iter/hour capacity. During the survey, no loss of water is observed, neither by any leakages or by over flow of water from overhead tanks. The data collected from all the departments, college and hostels is examined and verified. On an average the total use of water in the college is approximately 13,000L/day and changing season to season, general bifurcation is as given below.

Sr.No	Water Use	Consumption per day
1	Drinking (@ 2 lit by 2000 Staff / Students)	4000
2	Lavatories (@ 5 Liters for 600 Users)	3000
3	Laboratories and Hotel Management	1000
4	Hostel (@ 15 lit for 200 students)	3000
5	Canteen (@300 for 3 Canteen)	900
6	Gardening (@ 0.4 lit / tree for 2400 trees by drip)	960
Total Water Consumption per day		12860 Liters

Parameters that are frequently sampled or monitored for checking Water quality:-

S.No	Parameters	Standard value
1	Appearance	Clear
2	Odor	Odorless
3	Taste	Tasteless
4	pH	7.5

5	Dissolve Oxygen (DO)	5mg/l
6	Turbidity	5 NTU
7	TDS	100 – 110 PPM
8	Hardness	100 mg/l

3.3.3 Recommendations - Following points are recommended for good practices and improvement

1. No directives are given regarding cleaning chemicals to the sweeper, ensure that all cleaning products (Acid, Phenol etc) used by college should have optimum use and 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.
2. in campus design and use of small scale/medium scale/ large scale reuse and recycle of water system is necessary. This target can be achieved by giving micro projects to the civil engineering students.
3. Strong Measures should be taken for ground water recharging.
4. Chart should be maintained for the water tank cleaning.

3.4 Energy Conservation

3.4.1 Energy Conservation aspects - 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

3.4.2 Observations - Energy source utilized by the campus is electricity in emergency diesel generator is used as alternative arrangement during electricity failure. Diesel generator of three phase 35 KW Capacity is available in the Campus. Around 62 Solar Fan and 50 Solar Lamps are installed in the faculty sitting cabins. Total average energy consumption is determined as 3750 KWH/month and Generated by the solar panel is around 3500 KWH/Month so we are on an average procuring only procuring 9 % of our energy form outside. The entire campus including common facility centers 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 through 110 KW roof top systems 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.



Rooftop Solar System with 110 KW Capacity

3.4.3 Recommendations -

1. 5-star rated Air Conditioners, Fans and CFLs should be used.
2. Cleaning of tube-lights/bulbs to be done periodically, to remove dust over it.
3. Periodic Cleaning is required for the Solar Panels. It is suggested to work on project of automatic cleaning of the Solar Panels used for Electricity Generation.

4. Frequent maintenance of the Solar system, Workshop machines and electrical equipments to avoid loss of electricity.

5. In first step reduce the import of 9 % of energy to 5 % and then to Zero Percent.

3.5 Waste Management

3.5.1 Waste Management Aspects This indicator addresses waste production and disposal of different wastes like paper, food form mess and Hotel Management Department, plastic, biodegradable, construction, glass, dust etc. and recycling. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled 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.

3.5.2 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 is around 400 kg/year, magazines are bind and stored in the library. Waste of cartons and other packing material is 90kg/year. Very less plastic waste (200 gram/day) is generated by the department, office and canteen, 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.

Special 3000 cloth bag is ordered by the institution for subsuming the polythene bags and used for office work, distribution of uniforms and related other work. Institute has started Annadata for distribution of excess food remain in the college as well as different ceremonies in the Nanded city to the poor and needy people is very important step towards avoiding the west food.

Food waste of Mess is utilized for Bio Gas plant installed in the campus and the gas generated from the bio gas plant is used for the mess and Principal Quarter. Institute is not only working in Campus but working in vicinity area for waste Management every year we are working for Nirmalya sankalan through NSS Team.



Nirmalya Sankalan By Gramin Technical & Managment Campus

3.5.3 Recommendations -

1. Reduce the absolute amount of waste that is produced from college staff, office, canteen and from students.
2. Segregate and Send glass, cans, white, colored and brown paper, plastic bottles, batteries, print cartridges, computer hardware's , cardboard and furniture for recycling.
3. Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated
4. Provide sufficient, accessible and well-publicized collection points for recyclable waste at Gate No 1 and Gate No 2 with responsibility for recycling clearly allocated.

5. Important and confidential papers after their validity to be sent for pulping.
6. Varmi composting should be adopted on at least 300 sq. ft. of land and waste food from hotel management , collected leaf and grass should be used for composting.
7. Solid Waste Management plant on the pilot basis should be prepared by the students and used for recycling the wastage in the campus particularly focus on only one type of waste and then step by step for the other type of waste.

3.6 Green Area Management

3.6.1 Green Area Management Aspects 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 programm

3.6.2 Observations: Various manmade activities have wide range of impacts on the surrounding ecosphere, both negative as well as positive. Over the years, Gramin Technical and Management Campus has undertaken various activities like plantation and beautification of campus through various drives. Its mandatory for each student to plant least one plant and take care in his entire education in Gramin Technical and Management Campus , faculties also become part of it and planting oxygenated trees in the campus and taking their due care. The campus has good plantations and landscaping. It's a positive step to reduce its environmental impact. This section provides a detailed list of plant species observed within the campus.

The campus attempts to maintain eco-friendly atmosphere on the campus; the number and variety of plant species helps to maintain eco-friendly ambience. Further, to create eco-friendly awareness among the students college arranges special programmes through which the students get clear idea and importance of trees in life. There are around 2400 trees of different 105 species as given below.

Sr.No	Type	No of species	Total No
1	Flowering plant	22	412
2	Ornamental Plant	28	1182
3	Fruit Plant	11	59
4	Tree more than 5- 10 meter Tall	10	64

5	Tree more than 10 meter Tall	6	31
6	Medicinal Plant	4	24
7	Precious Plants Like Sandalwood	2	9
8	Palm tree	4	73
9	Vines / Arial Shoots	4	59
10	Herbs & Shrubs	9	215
11	Lawn	2	9500 Sq.Ft
12	Edges and Hedges	3	300 running feet
13	Fish	4	300
14	Tortoise	1	3

A team of 10 students and 5 Faculties made extensive survey and made the above findings. Primarily data sheet is formed and distributed amongst the students. One head is given to each student and team moved in the campus. All the students and faculties installed app leaf snap. Leafsnap can currently recognize 90% of all known species of plants and trees, covering most of the species will encounter in every country on Earth. This becomes helpful for all of us to find the scientific name and category of the plant. During the audit of the tree we taken due care about the plant problems and its remedial measures e.g. if the plant is not getting proper watering due to the in appropriate placement of the drip irrigation tube we have made the necessary corrections in it. We also identified the plants with the diseases like white mildew which was seen on the Hibiscus rosa-sinenses and suggested remedial measures too. Regular training and pruning of the plant is made and generally organic manure is given to the plants and trees. Plants and small trees are watered with drip irrigation system to reduce the wastage of water.

Five fish tank is developed artificially and around 300 fish and 3 tortoises are maintained in the tank. The tank is also planted with lotus and aquatic plants to maintain balanced ecosystem.



Survey of Plants in Campus with their species.

This year we have taken initiative to plantation of 2300 different variety of plants for which container is provided by the Gramin Technical and Management Campus. Around 2300 students voluntarily participated in the said campaign and planted different varieties of plants and they are taking due care of their plants. Each head of Department has given responsibility to check the plantation by the students. Along with the students Faculties and staff voluntarily participated in the plantation. The mortality rate of the plant is kept very low around only one percent by taking due care of the plant by students and the faculties.

ग्रीन ग्रामीण : विद्यार्थ्यांनी घेतले २३०० रोपांचे पालकत्व

नांदेड- वृक्षारोपण कार्यक्रमांतर्गत झाडांचे रोपण करून समाजाची भूमिका संपत नाही तर ती झाडे जगविण्याची जबाबदारी व उत्तरदायित्व देखील आपणच स्वीकारले पाहिजे. निसर्ग व समाजाशी असलेले संवेदनशील ऋणानुबंध जपण्याचे धडे शाळा व महाविद्यालयातून शिक्षण-प्रशिक्षण घेणाऱ्या विद्यार्थ्यांना औपचारिक-अनौपचारिक पद्धतीने दिले जाऊ शकते. अनेकदा विद्यार्थ्यांवरच याची प्रत्यक्ष जबाबदारी सोपविल्यास त्यांच्यातील कल्पकता, नावीन्यपूर्णता आणि सचोटीचा विकास साध्य होतो. याचीच प्रचिती ग्रामीण टेक्निकल अँड मॅनेजमेंट कॅम्पसने राबविलेल्या ग्रिन-ग्रामीण अर्थात हरित-ग्रामीण संकल्पनेने आली.

निसर्गाशी असलेले नाते घट्ट करण्यासाठी व सामाजिक बांधिलकी जपण्यासाठी ग्रामीणद्वारे राबविण्यात आलेल्या हरित ग्रामीण संकल्पनेने भारावून जात येथील विद्यार्थ्यांनी जवळपास २३०० पेक्षा जास्त रोपांची

एक विद्यार्थी एक झाड तत्त्वाने रोपांची लागवड



लागवड केली आहे. रोपांची नुसतीच लागवड करून जबाबदारी न झटकता येथील स्वतः प्राचार्य, शिक्षक-शिक्षकेतर कर्मचारी व विद्यार्थ्यांनी या वृक्षांचे पालकत्व स्वीकारले आहे.

एक विद्यार्थी, एक झाड तसेच एक शिक्षक, एक झाड असा नारा देत येथील कर्मचारी व विद्यार्थ्यांनी उत्सुकपणे निसर्गाला संजीवनी

देणारी विविध फळझाडे व फुलझाडांची लागवड केली आहे. झाडांसाठी वापरण्यात आलेल्या कुड्या व प्रत्यक्ष झाडांवर साकेतांक नोंदविण्यात आले आहेत जेणे करून विद्यार्थ्यांना त्यांचे झाड ओळखता येईल. पदविकेचे शिक्षण घेणाऱ्या विद्यार्थ्यांनी तीन वर्षे, तर पदवीचे शिक्षण घेणाऱ्या विद्यार्थ्यांनी चार वर्षे या झाडांच्या

पालणपोषणाची जबाबदारी स्वीकारली आहे.

झाडांची नियमितपणे मशागत करणे, सेंद्रिय खत, पाणी घालणे व संगोपनासाठी आवश्यक ती सर्व कामे करण्याची जबाबदारी घेऊन विद्यार्थी पुढे येताना दिसत आहेत. विद्यार्थ्यांच्या संवेदनशील मनावर दातूत्वाचे भाव कोरण्यासाठी तसेच निसर्गस्नेही, प्रसन्न व इकोफ्रेंडली ग्रिनकॅम्पसची निर्मिती करण्यासाठी या उपक्रमाची उपबोर्गिता मोलाची ठरेल, असा विश्वास संस्थेचे प्राचार्य डॉ. विजय पवार यांनी व्यक्त केला आहे. या उपक्रमात विष्णुपुरी येथील ग्रामीण टेक्निकल अँड मॅनेजमेंट कॅम्पस, ग्रामीण विज्ञान महाविद्यालय, तसेच ग्रामीण औद्योगिक प्रशिक्षण संस्थेतील सर्व विद्यार्थी, शिक्षक व शिक्षकेतर कर्मचारी सहभागी झाले आहेत. हरित ग्रामीण संकल्पनेची धुरा उपप्राचार्य संजय देऊळगावकर व डॉ. ओमप्रकाश दरक यांनी योष्यरित्या पार पडली आहे.

3.6.3 Recommendations -

1. Periodically review the list of trees planted in the garden. Give barcode to the trees so as to identify their scientific names and information.
2. 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.
3. Training, pruning and Manuring schedule should be prepared for the plants and maintained accordingly.

4. Present area under the greenery is about 62 Percent increases it to more than 70 Percent.

5. Increase the Plants which are giving more oxygen like Spider plant, Snake Plant, Money Plant etc and also increase the quantity of Medicinal Plants.

