

ENVIRONMENTAL AUDIT REPORT



Submitted By
TULASI EOHS CONSULTANCY SERVICES

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This is to certify that the following utilities were carried out Environmental audit in the month of

Details of Facilities Audited: Main college building including: Laboratories, Libraries, Hospitals , All departments and Hostel and college Canteen.

Dr. Vanisri Arunachalam

Er. C. Madhan Mohan

Authorized Signatory

For TULASI EHS CONSULTANCY SERVICES

Date :

Place : Chennai

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1. INTRODUCTION

Achieving a balance between the environment, society and the economy is considered essential to meet the needs of the present without compromising the ability of future generations to meet their needs. Sustainable development as a goal is achieved by balancing the three pillars of sustainability.

Societal expectations for sustainable development, transparency and accountability have evolved with increasingly stringent legislation, growing pressures on the environment from pollution, inefficient use of resources, improper waste management, and climate change, degradation of ecosystems and loss of biodiversity.

According to World Bank, environment audit is a methodical examination of environmental information about an organization, a facility or a site, to verify whether, or to what extent, they conform to specified audit criteria. The criteria may be based on local, national or global environmental standards. Thus, it is a systematic process of obtaining and evaluating information about environmental aspects

The International Organisation of Supreme Audit Institutions (INTOSAI) framework definition of environment auditing is:

- Environment auditing is not significantly different from normal auditing as practiced by Supreme Audit Institutions (SAIs).
- Environment auditing can encompass all types of audit, i.e., financial, compliance and performance audits. With respect to performance audits, the three E's of Economy, Effectiveness, and Efficiency can be included. The adoption of the fourth E, that is 'Environment', depends on the SAI's mandate and its government's environmental policy, which is desirable but not critical, in carrying out environment audit.
- The concept of sustainable development can be a part of the definition of environment audit, only if it is a part of the government policy and/or program to be audited.

2. OBJECTIVES OF ENVIRONMENTAL AUDITING

- An environmental audit programme which is designed and implemented properly can enhance an organizations environmental performance.
- Monitoring the scale of optimum utilization of the resources and evaluating the company at national & international level.
- To suggest for using alternative energy for the conservation of energy resources.
- Evaluation of waste water quality and determination of waste water characteristics & their effects on the living system.
- Classification of the categories of solid waste hazardous waste their sources, quantities & characteristics.
- Introduction and implementation of time saving technologies in regular operations.
- Maintains of Labour / Occupational health & medicine.
- Proper documentation of environmental compliance status.
- To help in minimizing the wastes through modern cleaner technologies.
- Regular environmental auditing once in a year will help in producing environmentally educated & technically sound personnel's.

3. ENVIRONMENTAL AUDIT SCHEME AND ITS COMPONENTS

This particular tool is very important aspect of the environmental audit for the total management system in terms of its being an asset or a liability for the industry's environmental performance. Environmental system is with a broad aim for a green environment.

It helps in reducing waste.

- ➡ It helps in assessing compliance with regulatory requirement.
- ➡ It also helps in prevention control of effect of pollutant.
- ➡ It promotes relationship between qualified technician professionals, individual industries, State Pollution Control Board, other public authorities and industrial association etc.

Environmental Audit Scheme (EAS) has three following components.

1. State Pollution Control Board

2. Internal Auditor Board

3. External Auditor

1. State Pollution Control Board

It plays active role in implementing the environmental audit effectively. The steps involved in state pollution control board are mentioned. To prepare format of audit report on all the aspect of environmental protection.

- Evaluation and verification of audit reports.
- Initiating the action on evaluated report.

2. Internal Auditor-The selection of auditor consist of experienced experts from various backgrounds. A qualified auditor should be required, as per the rules of State Pollution Control Board with well-equipped laboratory facility for analysis of water and air samples, which can be taken care by the State Pollution control board itself.

3. External Auditor -Team should be approved by State Pollution Control Board. Evaluated and verified reports have to send their comments to State Pollution Control Board for further action.

As per the Comptroller and Auditor General of India

- The audits can be divided into five categories—
 - (i) Air issues (ii) Water issues (iii) Waste (iv) Biodiversity (v) Environment Management System, but these categories can be subdivided to avoid a tunnel vision

Framework for campus sustainability

Environmental Management and sustainability in educational campuses

EMS In educational Campus

Green campus to showcase students where they learn and implement those ideas when they go

Environmental management system and sustainability cell in educational institutions

Conferences, seminars, workshops related to sustainable development energy, efficacy etc

Sustainability aspects should be included in course curriculum

Research and development on climate change, energy efficiency, sustainable development

Students and faculty participation in Environmental Management

Involvement of students and community for awareness and participation in different projects

Social justice chance to get education to students (poor/handicap) who are not able to get education

Sustainability aspects in research and teachings

Students and faculty participation project and social equity

4. EXECUTIVE SUMMARY

Air quality Management – The Institution is located in an area with greenery and hence, the quality of air is good. But usage of Generator and other utility activities may increase the air pollution hence the air quality to be monitored.

Water Management – As such, wise use of water is a general practice in Institution. Rainwater harvesting and the Institution has a water treatment plant in the campus and the recycled water is used for green campus.

Waste Management – Particularly the bio medical waste is controlled by the waste management of Pondichery Solid Waste Management.

Energy Management – Solar Panel was installed in the campus and the total energy production through the solar panel is 10.6 Kilo Watt, which helps to solve nearly 40%

Landscape – The Green Cover of the constituent colleges and Institution campus is well maintained by full time gardeners.

Transportations – Various initiatives taken by the universities as efforts for carbon neutrality.

Built up environment – In general, the built-up environment is eco-friendly and there is a need for adopting green habitat concept in future planning of buildings wherever possible, Buildings are constructed in such a way to access to natural sun light and air circulation.

Eco friendly – Many initiatives taken by the institution.

5.EMS REQUIREMENTS

A. Main Block

Date:

REQUIREMENTS	Assessor's Notes of Objective Evidences / Finding Reference
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4.3.1 Relevant Env. Aspects/Impacts

Aspects:	Impacts
Usage of Electricity	Resource Depletion
Usage of Mops & Wipers	Resource Depletion
Usage of Brooms	Resource Depletion
Usage of Clothes & Saw dust.	Resource Depletion
Usage of Washing Materials	Resource Depletion
Generation of Waste clothes/cotton	Land Contamination
Generation & Disposal of Waste paper,	Land Contamination
Generation of Waste Plastics materials	Land Contamination
Generation of Waste office stationery	Land Contamination
Emissions to air	Reduction of air quality associated with emissions of pollutants including: greenhouse gases, acidifying gases, ozone depleters, VOCs (from energy generation, heating, air condition and transport

Adequate Environmental measures have been evidenced for the above mentioned aspect and Impact

4.3.2 Legal and other Requirements

4.4.1 Resources, Roles, Responsibility & Authority

4.4.2 Competence, awareness and training for personnel involved

4.4.3- Internal Communication

Resources for ensuring compliance with all legal requirements provided and maintained.

Roles and responsibilities for personnel responsible for implementation of the system documented and maintained.

It has been ensured that personnel performing tasks for or on company Behalf that have the potential to cause significant environmental impacts are competent on the basis of appropriate education, training and/or Experience

Internal communication by floor Coordination Meetings, Display Boards, Internal Office Memos, circulars.

REQUIREMENTS

Assessor's Notes of Objective Evidences / Finding Reference

4.4.5 Control of documents	The organization has established, implemented and maintains a procedure for controlling all the documents defined under the EMS with respect to approving, reviewing, updating and re-approving. Also ensures that changes and current revision status of documents are identified, relevant versions are available at point of use and the documents are legible and readily identifiable
4.4.6 Operational Control	Air quality monitored from time to time as verified in report Noise level monitored and recorded.
4.4.7 Emergency Preparedness and Reponses	Emergency incidents are identified those that may not be regulated, but may still cause significant impact as defined by the organization. As part of continual improvement, it is required that the organization not only responds to emergency situations but has to review and make improvements necessary through periodic testing
4.5.1 Monitoring & Measurement	The process results are monitored against objectives and targets.
4.5.3 Nonconformity, Corrective Action and Preventive Action	All the System Non conformities recorded in IQA – CAR format.
4.5.4 Control of Records	The organization has established, implemented and maintains all the relevant records for the Identification, storage, protection, retrieval, retention and disposal of environmental records.

B. Library

Date:

4.3.1 Relevant Env. Aspects/Impacts	Aspects:	Impacts
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	Usage of Electricity	Resource Depletion
	Usage of Mops & Wipers	Resource Depletion
	Usage of Brooms	Resource Depletion
	Usage of Clothes & Saw dust.	Resource Depletion
	Usage of Washing Materials	Resource Depletion
	Generation of Waste clothes/cotton	Land Contamination
	Generation & Disposal of Waste paper,	Land Contamination
	Generation of Waste Plastics materials	Land Contamination
	Generation of Waste office stationery	Land Contamination
	Emissions to air	Reduction of air quality associated with emissions of pollutants including: greenhouse gases, acidifying gases, ozone depleters, VOCs (from energy generation, heating, air condition and transport
	Statutory nuisance	Disruption to quality of life/working condition: noise, vibration, odours, littering, dust, smoke, traffic, light/glaring, visual impact, physical hazard,
4.3.2 Legal and other Requirements	Adequate Environmental measures have been evidenced for the above mentioned aspect and Impact	
4.4.1 Resources, Roles, Responsibility & Authority	Resources for ensuring compliance with all legal requirements provided and maintained.	
4.4.2 Competence, awareness and training for personnel involved	Roles and responsibilities for personnel responsible for implementation of the system documented and maintained.	
4.4.3 Internal Communication	It has been ensured that personnel performing tasks for or on company Behalf that have the potential to cause significant environmental impacts are competent on the basis of appropriate education, training and/or Experience	
REQUIREMENTS	Assessor's Notes of Objective Evidences / Finding Reference	

4.4.5 Control of documents	The organization has established, implemented and maintains a procedure for controlling all the documents defined under the EMS with respect to approving, reviewing, updating and re-approving. Also ensures that changes and current revision status of documents are identified, relevant versions are available at point of use and the documents are legible and readily identifiable
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4.5.3 Nonconformity, Corrective Action and Preventive Action	All the System Non conformities recorded in IQA – CAR format.
4.5.4 Control of Records	The organization has established, implemented and maintains all the relevant records for the Identification, storage, protection, retrieval, retention and disposal of environmental records.

C. Hostel and canteen

Date:

4.3.1	Relevant	Env.	
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Aspects/Impacts	Aspects:	Impacts
	Usage of Electricity	Resource Depletion
	Usage of water	Depletion of Natural Resources.
	Usage of Mops & Wipers	Resource Depletion
	Usage of Brooms	Resource Depletion
	Usage of Clothes & Saw dust.	Resource Depletion
	Usage of Washing Materials	Resource Depletion
	Generation of Waste clothes/cotton	Land Contamination
	Generation & Disposal of Waste paper,	Land Contamination
	Generation of Waste Plastics materials	Land Contamination
	Generation & Disposal of Food Waste	Land Contamination
	Usage of Soap Oil	Land Contamination, Water & Air Pollution
	Statutory nuisance	Disruption to quality of life/working condition: noise, vibration, odours, littering, dust, smoke, traffic, light/glaring, visual impact, physical hazard,
	Adequate Environmental measures have been evidenced for the above mentioned aspect and Impact	
4.3.2 Legal and other Requirements	Resources for ensuring compliance with all legal requirements provided and maintained.	
4.4.1 Resources, Roles, Responsibility & Authority	Roles and responsibilities for personnel responsible for implementation of the system documented and maintained.	
4.4.2 Competence, awareness and training for personnel involved	It has been ensured that personnel performing tasks for or on company Behalf that have the potential to cause significant environmental impacts are competent on the basis of appropriate education, training and/or Experience	
4.4.3 Internal Communication	Internal communication by floor Coordination Meetings, Display Boards, Internal Office Memos, circulars.	

REQUIREMENTS	Assessor's Notes of Objective Evidences / Finding Reference
4.4.5 Control of documents	The organization has established, implemented and maintains a procedure for controlling all the documents defined under the EMS with respect to approving, reviewing, updating and re-approving. Also ensures that changes and current revision status of documents are identified, relevant versions are available at point of use and the documents are legible and readily identifiable
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4.5.1 Monitoring & Measurement	The process results are monitored against objectives and targets.
4.5.3 Nonconformity, Corrective Action and Preventive Action	All the System Non conformities recorded in IQA – CAR format.
4.5.4 Control of Records	The organization has established , implemented, and maintains all the relevant records for the identification , storage, Protection, retrieval, retention and disposal of environmental records

A. All Departments

Date:

4.3.1 Relevant Env.	
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Aspects/Impacts	Aspects:	Impacts
	Usage of Electricity	Resource Depletion
	Usage of water	Depletion of Natural Resources.
	Usage of Mops & Wipers	Resource Depletion
	Usage of Brooms	Resource Depletion
	Usage of Clothes & Saw dust.	Resource Depletion
	Usage of Washing Materials	Resource Depletion
	Generation of Waste clothes/cotton	Land Contamination
	Generation & Disposal of Waste paper,	Land Contamination
	Generation of Waste Plastics materials	Land Contamination
	Generation & Disposal of Food Waste	Land Contamination
	Statutory nuisance	Disruption to quality of life/working condition: noise, vibration, odours, littering, dust, smoke, traffic, light/glaring, visual impact, physical hazard,
	Adequate Environmental measures have been evidenced for the above mentioned aspect and Impact	
4.3.2 Legal and other Requirements	Resources for ensuring compliance with all legal requirements provided and maintained.	
4.4.1 Resources, Roles, Responsibility & Authority	Roles and responsibilities for personnel responsible for implementation of the system documented and maintained.	
4.4.2 Competence, awareness and training for personnel involved	It has been ensured that personnel performing tasks for or on company Behalf that have the potential to cause significant environmental impacts are competent on the basis of appropriate education, training and/or Experience	
4.4.3 Internal Communication	Internal communication by floor Coordination Meetings, Display Boards, Internal Office Memos, circulars.	
REQUIREMENTS	Assessor's Notes of Objective Evidences / Finding Reference	

4.4.5 Control of documents	The organization has established, implemented and maintains a procedure for controlling all the documents defined under the EMS with respect to approving, reviewing, updating and re-approving. Also ensures that changes and current revision status of documents are identified, relevant versions are available at point of use and the documents are legible and readily identifiable
4.4.6 Operational Control	Air quality monitored from time to time as verified in report Noise level monitored and recorded.
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4.5.3 Nonconformity, Corrective Action and Preventive Action	All the System Non conformities recorded in IQA – CAR format.
4.5.4 Control of Records	The organization has established, implemented and maintains all the relevant records for the Identification, storage, protection, retrieval, retention and disposal of environmental records.

6. BEST PRACTICES /INITIATIVES FOR ENVIRONMENT

SR NO	DESCRIPTION	REMARKS
1	<p>Renewable Energy Approximately 40% of power requirement of Institute met by the following renewable energy sources</p> <p>Solar Panels</p> <ul style="list-style-type: none"> • Solar energy water heater in all Hostels • Solar energy Steamer in Mess and canteen for cooking foods 	Solar panels photo required
2	<p>LED Lights</p> <ul style="list-style-type: none"> • Energy Efficient LED Lights of 90% of Street lamps, and 50% of lights inside the building were replaced using LED lights • 100% of Street lamps, and lights inside the building were replaced using LED lights • Sensor based energy conservation for LED lamps in corridors 	
3	<p>Day light usage</p> <ul style="list-style-type: none"> • Buildings are constructed in such a way to access to natural sun light and air circulation • Stressing all the staff to utilize water whatsoever quantity is utmost required only and also Minimizing the electricity consumption by making practice of switching off light and fan whenever people leaves the room. 	
4	<p>Rain Water Harvesting, Sewage Treatment and Recycling Plant</p> <ul style="list-style-type: none"> • To promote environmental aspects, the institute has initiated steps which include in campus rain water harvesting projects 	<ul style="list-style-type: none"> ➤ Rain Water Harvesting System is installed to collect rain water from roof top of the buildings. ➤ Effluent sewage water treatment was done on daily basis @ 500 KLD (5, 00,000 litres capacity), and was utilized for watering the trees, plants, shrubs, and grass etc. ➤ Daily 22,000 litres of RO drinking water is produced using Reverse Osmosis plant in the campus with storage capacity of 40,000 litres

5	<p>Efforts for Carbon Neutrality</p> <ul style="list-style-type: none"> • Tree plantation drives • Prevention of pollution • Reduction of paper usage • Plastic free zone 	<ul style="list-style-type: none"> ➤ Landscaping with trees, plants, and Herbal Plants ➤ It is a sub-tropical terrain plain to pho land with a campus of 40.57 acres and it is corrected. ➤ Restricted entry of automobiles beyond parking area inside the campus in order to prevent air and noise pollution, and encourage use of Institutional Bi-cycles for internal mobilization ➤ All official communications in the Institute from the administration to faculty are through emails. No paper circular are issued ➤ Departments are encourage to reutilise the one side printed papers for printing various other material. ➤ Discouraged to use of polythene
6	<p>Waste Management</p> <ul style="list-style-type: none"> • Bio- medical waste handling techniques are well mannered. • Colour coding for waste segregation and recycling campaign 	<ul style="list-style-type: none"> ➤ Bio-medical wastes, Solid wastes, & E-wastes are collected in different color-coded bags as per schedule 1 in adherence to Biomedical Wastes (management & handling) rules 2018. Pondicherry solid waste management company Private Limited (PSMPL) is the authorized common biomedical solid waste management facility by Pondicherry Pollution control committee. ➤ Green color - food waste, Red color - for biomedical waste, Yellow color - Plastic waste, Blue color - Big unbreakable bottles, White color - Sharp Needles

7. RECOMMENDATIONS/SUGGESTION

Positive points

- **Energy Management-** 40% of power requirement of the Institute met by the solar energy source. 100% of Street lamps, and lights inside the building were replaced using LED lights. Sensor based energy conservation for led lamps in corridors.

- **Water Management** –Rainwater harvesting, and the Institution has a water treatment plant in the campus and the recycled water is used for green campus.
- **Landscape** – The Green Cover of the constituent colleges and Institution campus is well maintained by full time gardeners. The plants belonging to sawed habits like epiphytes, climbers (4 nos), Grasses (Korean grass covers 7000 Sq.Mt; St.Augustian grass covers), Herbs (878 nos), Shrubs (7046 nos covers 2944 Sq,Mt), Tree saplings (120 nos) and Trees (1021 nos covers 19449 Sq.Meter). The plants belonged to 49 different families and total 190 species of Flora in the campus. as one of the Green Educational Institutes in Pondicherry with Flora and Fauna diversity.
- **Bio-hazardous waste Management-** Proper disposal of waste products as per biomedical waste management & rules
- Rain water Harvesting is installed in our campus to raise the ground water level naturally
- Daily 22,000 litres of RO drinking water is produced using Reverse Osmosis plant in the campus with storage capacity of 40,000 litres.
- **World water day** - To increase the awareness of students towards the importance of water in various fields of life including the environment and to acquire environmentally friendly techniques to reduce water pollution, on every 22nd of march the world water day is celebrated

Opportunity for improvements

- **Environmental Science in Syllabus:** "Environmental science" can be included in curriculum for all the courses.
- **Efforts of carbon neutrality:** Reduction of paper usage through e-ticketing,
- Encourage car-pooling among the staffs
- Purchasing of Chlorine Free paper is an environmentally preferable alternative to paper bleached with chlorine.

8. CONCLUSIONS

Even though the college does perform fairly well, the recommendations in this report highlight many ways in which the college can work to improve its actions and become a more sustainable institution.

Environmental audit is carried out to provide an indication to campus management about how the environmental Organization system and equipment's are performing. As a result the best practicable means can be applied to preserve air, water, soil, plant and animal life from the adverse effect

High Priority

- Generation of Non-biodegradable wastes (21759 kg /day) can be managed by practicing the concept of 3R's—Reduce, **Reuse**, and Recycle.
- Adopt the proposed Environmentally Responsible Purchasing Policy, and work towards creating and implementing a strategy to reduce the environmental impact of its purchasing decisions.
- Increase recycling education on campus.
- Introduce a policy of non-acceptance of products packaged in non-recyclable materials and continuously improve the handling of solid waste.
- Regulate the flow of water by installing economy systems in wash-rooms, showers, cleaning areas and rest-rooms. Substitute conventional valves for economy valves to reduce the volume of water when flushing the toilet, and substitute 12 litre cisterns for 6 litre ones.
- Record the waste generated by the institution, and a breakdown of the contents and compare the waste with previous year for self-estimation of waste management.