


12/12/2023

To
The Principal/Director
Institute of Engineering Management
Salt Lake, Electronics Complex
KOLKATA 700 091
West Bengal

Sir.

After physical verification and necessary assessment of the report of "Green Audit" prepared by your College, here we are submitting this Audit Report of "Environmental Audit" or "Green Audit" of your College for the year 2022-23 for your kind perusal in the attached sheet as an Annexure-1.

Acknowledge and oblige,
Yours,



12/12/2023

Dr. Asok Kanti Sanyal
Ex-Chairman
WB Biodiversity Board
Kolkata
West Bengal

Dr. Asok Kanti Sanyal
Ex-Chairman
West Bengal Biodiversity Board
(Dept of Environment, Govt. of West Bengal)

Report of Environmental Audit/Green Audit

1.0 Introduction

A systematic identification, quantification, recording, reporting and analysis of components of our surrounding environment and environmental diversity are the fundamental aspect of Green Audit or Environmental Audit. Usually, "Green Audit" is an umbrella term, which also been recognized as "Environmental Audit". Basically, 'Environmental Audit' or 'Green Audit' is required to evaluate the practices endorse the eco-friendly practices adopted within and outside the Institute. It has an immense impact on the stakeholders by creating a good and congenial ambience within the institutional campus. It was started with the objectives to inspire the all levels of stakeholders to be involved in the process of making safe environment of the HEIs and safe health of inhabitants.

National Assessment and Accreditation Council (NAAC) emphasized its importance and added in its evaluation format, i.e., in Criteria VII mentioning the basic need of it and combined with the Institutional Grade.

About the College

Institute of Engineering and Management situated in the heart of Kolkata Metropolitan City of the State of West Bengal, surrounded by densely populated residential complexes is established in 1989 by IEM-UEM Group, Kolkata. It has been able to set sublime standards in addressing the technical and managerial resource along with teaching and R&D in multifaceted areas. This Institute intended to maintain environmental conservation and sustainability making the "Green Campus" since last 4 years.

The Vision of the Institute aims towards self-sufficiency and excellence among the students Institute has developed different unique methods of collection and conservation of water, plantation, waste management, paperless work and use of alternative sources of energy.

2.0 Executive Summary

In accordance with the Format of Green Audit and Evaluation Plan of Institute of Engineering and Management, Govt. of West Bengal, Kolkata, West Bengal for the year 2022-23 this Audit was conducted in the month of December 2023.

The rapid urbanization and economic development along with population explosion with high density at Kolkata and adjacent areas have led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus in the nearby colleges which will lead for sustainable development and be the spokesman of the region. Institute of Engineering and Management, is seriously concerned and believes that there is an urgent need to address these local problems and redress the conditions. Being an engineering institution of higher learning, IEM has initiated 'The Green Campus' program few years back. The purpose of the audit was to ensure that the practices followed in the Campus are in accordance with the Environmental Policy adopted by the Institute. With this in mind, the specific objectives of the audit were to evaluate the adequacy of the management control framework of Environment Sustainability as well

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as the degree to which the different sections are in compliance with the applicable regulations, policies and standards.

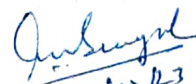
3.0 Significant Observations.

1. Institute of Engineering and Management has formed "College Environmental Committee" and has taken efforts for sustainable development on the College campus.
2. The faculty and student members of College Environmental Committee are maintaining greenery of the campus and also participate in preventing pollution in and around the campus.
3. Some of the best practices such as biodiversity mapping, campus cleaning, maintaining tree plantation, introducing 'plastic free zone', 'No Horn' area, etc., are followed in the campus.
4. Institute of Engineering and Management has solar system at the front Gate and enjoying the benefit power requirement of this Institute from this renewable source of energy.
5. Institute is maintaining the disposal of all sorts of wastes, e-wastes and hazardous chemicals wastes through NDITA; NDITA collects wastes 3-d/week.
6. Institute has conducted Environmental Awareness programmes and workshop for faculty and students, and involved the students in maintaining the cleanliness of the campus.
7. All teaching and non-teaching staff members, students are advised to use recyclable materials for storing their food, water etc., to reduce the wastes.
8. Students are getting exposure to maintain the Biodiversity-mapping through training, workshop etc., every year.
9. College runs a project in the name of "Green Verge" with New Town Development Authority (NKDA) since June 2021

However, after detailed paper examinations and physical verification it is noted that, some of the practices are required to be followed by the College in implementing the Green Policy of the Institution and the applicable standards. In addition, certain processes could benefit from further review in order to improve their efficiency, fairness and consistency.

4.0 Statement of Assurance

In our professional judgement, as far as possible and appropriate audit procedures were completed and evidence gathered to support the accuracy of the conclusions reached and contained in this report. The conclusions are based on a comparison of the situations as they existed at the time of the audit with the established criteria.


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GREEN AUDIT WORKING FORMAT

5.0 Audit Framework and detailed findings

The following audit framework is used for conducting Green Audit in Year 2022-23. The framework also lists the findings and observations for every criterion.

Control objectives	Control(s)	Audit Observations
1. Maximize the proportion of waste that is recycled & minimize the quantity of non-recyclable refuse	Reduce the absolute amount of waste that it produces from the Institute & Staff offices.	The Institute has used some controls to reduce the absolute amount of waste that it produces from the departments, staff offices etc.
	Make full use of all recycling facilities provided by City Municipality and private suppliers, including glass, cans, white, coloured and brown paper, plastic bottles, batteries, print cartridges, cardboard and furniture.	Institute is taking the advantages of waste management provided by Naba Diganta Industrial Township Authority (NDITA). It is further instructed to make formal MoU for maintaining long-term basis and periodical monitoring.
	Compost or cause to be composted. all organic waste, green waste and un-recycled cardboard produced in or collected from kitchens, gardens, offices and rooms.	The Institute is using different colour bins for disposal of differently segregated wastes. Food-wastes from Canteens and Hostel kitchen and the fallen dead leaves from the garden are managed. Un-recycled cardboard produced in or collected from departments, gardens, offices and class rooms are disposed as solid wastes.
	Recycle or safely dispose of white goods, computers and electrical appliances.	Some safe disposal methods are adopted for electrical printer cartridges etc.. Wastes tender process.
	Use reusable resources and containers and avoid unnecessary packaging where possible	The Institute is preparing the resources for use of reusable resources and containers.
	Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated	The Institute has limited scope of accessible and well-publicized collection points for recyclable waste.
2. Maximize the proportion of waste that is recycled & minimize the quantity of non-recyclable refuse	Make specific arrangements for events, such cultural Events, as internal and external seminars and conferences, where	The Institute follows good practices and some specific arrangements for events, such as Cultural Events, International

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	significant recyclable waste is likely to be produced, in order to both minimize the waste produced and maximize what is recycled/reused	and National seminars and Conferences, where significant recyclable wastes are. likely to be produced.
	Promote reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives	The Institute practised the process of reuse of aluminium wastes and used for practical purposes on regular basis to demonstrate the molding & casting in Mechanical Workshop for the students' practical class.
	Dispose all waste, whether solid or otherwise, in a scientific manner and ensure that it is not released directly to the environment	Yes, the Institute disposes all wastes, whether solid or otherwise, through NDITA and ensures that it is not released directly to the environment.
3. Reduce energy consumption, especially of energy derived from fossil fuels.	Support renewable and carbon-neutral electricity options on any energy purchasing consortium, with the aim of supplying all college properties with electricity that can be attributed to renewable and carbon-neutral sources.	Institute has installed solar panels and uses solar system since 2014. For maintaining all other properties College is dependent on energy-purchasing consortium.
	Appreciate that it is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity	The Institute no choice other than State Electricity Board.
	Look into the possibility of on-site micro-generation electricity	The Institute has installed SOLAR PANNELS having the capacity of 42 kW.
	Give preference to the most energy efficient and environmentally sound appliances available, this includes only using energy-saving light bulbs	The Institute is using LED (75%) as much as practicable
4. Reduce energy consumption, especially of energy derived from fossil fuels	Encourage staff, students and conference guests to save energy through visible reminders, incentives and information to increase awareness. This particularly concerns turning off electrical appliances when not in use in both communal and residential rooms	Misuse of electricity is controlled by turning off the appliances when not required. All the stakeholders are aware and doing their best and practices 'switch off drill' to save electricity.
	Ensures that all electronic and	Students and all the members

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	electrical equipment's, such as computers, are switched off when not in use, and is generally configured in power saving mode when such option is available	are used to follow this practice.
	If there are equipment's running on standby mode, reduce the energy consumption on standby mode or minimize the running of equipment's on standby mode	Some of the equipment's are running on standby mode
	Purchase efficient and environmentally sound appliances in order to fulfill the commitments in section 2, and consider replacing old stock with 'greener, more efficient alternatives.	College maintains 30 % greenery of the total campus. Institute is positive about increasing greenery by planting 1000 plants on 1.3 acre land at New Town Action Area III with NKDA. Tree plantation programmes are followed in different occasions on regular basis.
5. Minimize the use of unsustainable transport	Make available information about bicycle and pedestrian routes, public transport services and car share schemes to staff and students.	The Institute is located at the centre of the city and well connected through bus services. Besides, 7 Buses are run by the College at different route for staff and students.
6. Minimize the use of unsustainable transport	Reduce the proportion of travel on the University/Institute business carried out in private transport and eliminate unnecessary and inefficient use of the University/Institute vehicles	Institute have separate common bus services to all stakeholders. 20 of the students are using institutional bus services. Some of the faculty members use private car.
	Promote car sharing / car pool among the students and faculty members	Yes, Institute has 4 numbers of car pool for the benefit of staff and students.
7. Minimize consumption of water	Repair sources of water leakage, such as dripping taps and showers as quickly as possible.	Regular checking and maintenance of pipelines are done to control the water wastage. Misuse and wastage of water from: sources are taken care of.
	Install appliances which reduce water consumption	Practised as much as possible.
	Encourage a decrease in water usage among staff, students and conference guests	Institute has taken some steps to encourage a decrease in water usage among staff, students and conference

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		guests.
	Use an efficient and hygienic water storage mechanism is to minimize the loss of water during storage	Institute has a hygienic water storage mechanism to minimize the loss of water during storage.
	Minimize wastage of water and use of electricity during water filtration process, if used, such as RO filtration process and ensure that the equipment's used for such usage, are regularly serviced, and the wastage of water is not below the industry average for such equipment's used in similar capacity	All the departments have RO.. Water filter with Aqua guards at the strategic locations the campus for the students. All are under AMC.
	Install Water recycling mechanism, such as rain water harvesting system	No, this is not yet installed. Institute has a rain water harvesting system and use of waste water for other purposes after monitoring the quality of water.
	Ensure that all cleaning products used by the University/Institute staff have a minimal detrimental impact on the environment, i.e., are biodegradable and non-toxic, even where this exceeds the Control of Substances Hazardous to Health (COSHH) regulations	Negligible amount of cleaning/washing liquids are used in the College for different purposes.
	Minimize the use of fertilizers and pesticides in the University/Institutional gardens, opting for the use of compost produced on site wherever possible	Negligible amount of fertilizers and pesticides are used in the campus for maintenance of tree etc.
	Dispose the chemical waste generated from the laboratories in a scientific manner	Proper disposal system of toxic and hazardous chemicals is followed.
	Reduce the practice of burning plastic and other materials that emit the harmful gas on burning is prevented in the campus.	No such burning
	Establish a Garden in the campus	Institute maintains a garden in the Campus. Students have some knowledge on Biodiversity register.
	Encourage the faculties and students to plant trees in the garden.	Institute conducts tree plantation programmes through students and staff

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		members on regular basis and in different occasions. Choice-plantation, fruit-plantation like palm, dates, etc., may be encouraged depending on the suitability of the region.
	Reviews periodically the list of trees planted in the garden periodically	Periodical maintenance is followed.
8. Ensure that environmental awareness is created	Conduct environmental awareness workshops as a part of the program.	Environmental awareness programmes are organised on regular basis for conservation of
9. Ensure that environmental awareness is created.	Create awareness of environmental sustainability and takes action to ensure environmental sustainability.	Institute conducts seminars and awareness programme to ensure environmental sustainability and environment of students is encouraging.
	Reduce the rate at each the University/Institute contributes to the depression and degradation of natural resources.	Institute is not directly or indirectly participating in depression and degradation of natural resources.
	Promote environmental awareness as a part of course work in various curricular areas, independent research projects and community service.	Compulsory environmental science is taught as AICTE syllabus in the 3rd and 4th semesters. College has no separate department.

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10. ensure that the buildings conform to green standards.	Review architecture of existing buildings and reviews wage in consultation with expert, to reduce usage of energy for such buildings, offering greatest efficiency for energy and water usage and reducing carbon emission.	New construction are followed as per engineering protocol.
11. Ensure that the environmental policies is enacted, enforced and reviewed.	Established the University or Institute environmental committee that will hold responsibility for the enacted, enforcement and review of the environmental policy. The environmental committee shall be the source of advised and guidance to staff and students on how to implement this policy.	Institute has "College environmental committee ", and 2 meeting per year. Institute may take initiative form Bio-circle or echo circle organisation for better environmental management.
	Ensure that on the nature club/environmental committee there will be appropriate representatives of the relevant University, Departments and Authorities – such as catering, gardening, maintenance, cleaning & finance.	College environmental committee is constituted by the representative from all such section to maintain the campus. Staff members are trained to handle the fire safety apparatus.
12. Ensure that the environmental policies is enacted, enforced and reviewed.	Ensure that the environmental committee there will be the green officer from an external agency who is engage in the profession of providing guidance on environmental impact.	Institute has 1 coordinator, but no green officer as such in the college environmental committee.
	Ensure that the environmental committee will review the environmental policy on an annual basis and will monitor progress and set measurable targets wherever possible.	College environmental committee has taken the responsibility to follow the environmental policy. Campuses are declared as "Plastic Free Zone". Institute campus is declared as "No Harm Zone"
	Ensure that environmental policy is enforced regardless of whether its requirements exceed the mandate of the law.	Initiative has been taken to adopt the green policy.
	Required that every staff and student members recognises their responsibilities to ensure that the commitment in the environmental policy are properly put into practice.	Members of the college environmental policy are following the green practices.
	Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings.	Environmental audit are green audit is conducted since 2016, this year 2022 – 23.

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6.0 Recommendations.

Following the audit, several recommendations were made to the management.

Criteria	Recommendations
Maximize the proportion of waste that is recycled & minimize the quantity of non-recyclable refuse	<ol style="list-style-type: none">1. Advanced Composting system may be developed for organic wastes.2. Disposal of chemical wastes through licensed agents is to be practised.3. Vermicomposts may be used in the College garden itself along with other manures.
Reduce energy consumption, especially of energy derived from fossil fuels	<ol style="list-style-type: none">1. Enhancement of percentage of power requirement by contributing more solar electricity power from solar panels.2. More number of Energy and flow meters to be installed for monitoring of energy and water consumption building wise/department wise.
Maintenance of Campus and biodiversity	<ol style="list-style-type: none">1. Continuation of maintenance of PBR year wise for different locations.2. Choice-plantation, fruit-plantation, artificial nesting, etc., be followed to maintain attract birds and other animals within the campus.
Proper cleaning of water storage Tanks	<ol style="list-style-type: none">1. More attention to be made to minimize wastage of water.
Project-based learning on Environment related subjects	<ol style="list-style-type: none">1. Creation of opportunity to start with technical, skill-oriented and hands-on-training programmes for environmental monitoring.

7.0 Objectives and Scope

The purpose of this audit was to ensure that the Green Policy is followed and implemented in the campus, across all departments, administrative bodies and students.

8.0 Methodology

The methodology includes - preparation and filling up of questionnaire, screening of the report, physical interaction with the members in presence of Principal/Director and the Members of the 'College Environmental Committee' as well as Members of IQAC, record checking and review of the submitted documentations, interviewing key persons and data analysis, measurements and recommendations. It works on the several aspects of 'Green Audit' including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and maintenance of Biodiversity Register.

a. In order to meet these objectives, this audit was based on report submitted by the College authority and reviewing of relevant documents as far as possible and interviews with authority, Coordinator and staff members physically.

Amal Kumar
12/12/23

b. Review of the Documentations

c. For the purpose of this audit the Green Policy of the institute was reviewed. Other relevant standards, Green audit framework etc., was also considered.

Interviews

Interviews were conducted with the Principal, IQAC Coordinator, Coordinator of 'College Environmental Committee' and also members of the Committee.

Physical Inspection

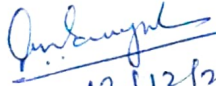
Physical inspection was made on 12th of December 2023 and report was prepared based on the physical verification and validation and interaction with the members of the Institute.

9.0 Declaration

I agree with all the recommendation and observations mentioned in this report.

Date: 12/12/2023

Place: Institute of Engineering and Management
Kolkata


12/12/2023

Dr. Asok Kanti Sanyal
Ex Chairman
West Bengal Biodiversity Board
(Dept. of Environment, Govt. of West Bengal)


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