ENVIRONMENT AUDIT REPORT

G. L. Bajaj Institute of Technology and Management, Greater Noida, Uttar Pradesh: 201306

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Our special thanks are due to:

- Director of the Institute – Dr. Rajeev Agrawal
- Teaching & Supporting Staff of College

For giving us necessary inputs to carry out this very vital exercise of Green Audit. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

DISCLAIMER

Skwheelz Resource Management Green Audit Team has prepared this report for **G. L. Bajaj Institute of Technology and Management** based on input data submitted by the representatives of institute complemented with the best judgment capacity of the expert team.

While all reasonable care has been taken in its preparation, details contained in this report have been compiled in good faith based on information gathered.

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Report by: (Sharad Prateek Singh) Lead Auditor

CONTEXT

The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory from the academic year 2016–17 onwards that all Higher Educational Institutions should submit an annual Green Audit Report. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures.

In view of the NAAC circular regarding Green Auditing, the College Management decided to conduct an external Green Evaluation by a competent Green Auditor along with a Green Audit Assessment Team headed by Dr. Rajeev Agrawal, Director, G. L. Bajaj Institute of Technology and Management, Greater Noida**.**

Green Audit or Environment Audit focuses on the Green Campus, Waste Management, Water Management, Air Pollution, Energy Management & Carbon Footprint etc. being implemented by the College Management.

The concept, structure, objectives, methodology, tools of analysis, objectives of the audit are mentioned below.

CONCEPT

The term 'Environmental audit' or 'Green audit' means differently to different people. Terms like 'assessment', 'survey' and 'review' are also used to describe similar activities. Furthermore, some organizations believe that an 'environmental audit' addresses only environmental matters, whereas others use the term to mean an audit of health, safety and environment-related matters. Although there is no universal definition of Green Audit, many leading companies/institutions follow the basic philosophy and approach summarized by the broad definition adopted by the International Chambers of Commerce (ICC) in its publication of Environmental Auditing (1989).

The ICC defines Environmental Auditing as:

"A management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of safeguarding the environment and natural resources in its operations/projects."

The European Commission, in its proposed regulation on environmental auditing, has also adopted the ICC definition of Environmental Audit. However, the outcome of Green Audit should be established with concrete evidence that the measures undertaken and facilities in the institution under green auditing.

INTRODUCTION

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.
Environmental Management Systems (EMS) is very popular in the industrial sector, but the general belief is that EMS is something pertaining to industries only. Other parts of the world have started adopting compatible environmental management systems either voluntarily or for promoting standards by external certification. International environmental standards do not suit the existing Indian educational system. Hence Skwheelz Resource Management has developed a compatible system by developing locally-applicable techniques.

A very simple indigenized system has been devised to monitor the environmental performance of educational institutions. It comes with a series of questions to be answered on a regular basis. Environmental conditions may be monitored from angles that are relevant to Indian requirements, without stress on legal issues or compliance. This innovative scheme is user- friendly and totally voluntary. The environmental monitoring system helps the institution to set environmental examples for the community and to educate young learners. It can be adapted to urban and / or rural situations.

OVERVIEW OF INSTITUTE

The G. L. Bajaj Institute of Technology and Management is situated at Knowledge Park in Greater Noida; it is situated right next to Yamuna Expressway and is easily accessible via metro, busses and other modes of road transport.

GL Bajaj Institute of Technology & Management is the 6th Institute established under the prestigious banner of Rajeev Memorial Academic Welfare Society (Registered Under Societies Registration Act 1860). The institute is approved by All India Council for Technical Education (AICTE), Ministry of HRD, Govt. of India and Affiliated to Dr. A.P.J. Abdul Kalam Technical University (Formerly UPTU Lucknow). The institute has been maintaining its positions amongst the top engineering and management colleges in AKTU university results. It has been maintaining the highest pass percentage amongst the engineering and Management colleges in Noida and Greater Noida region under Dr. APJ Kalam University, Lucknow for the last eight years and is listed among the top engineering and management colleges in Greater Noida, Delhi NCR. In fact, this engineering college has been listed among the top engineering of India by NIRF, issued by MHRD, Government of India. The Institute has also received awards for being one of the top engineering and management institutes of North India and UP by many organizations.

The most valuable investment any educational institution can make is "Nurturing Future Leaders". With the continuous rise in expectation of essential leadership standards, GLBITM's torch bearers have taken a responsibility for this investment to nurture the Next-Gen leaders with a vision to bridge the existing skill gap. With a firm step forward to attain an academic excellence, several Centers of Excellence, laboratories, incubation cell and industry- academia associations have been setup at the institute in association with global leaders.

We have setup multiple facilities for students in partnership with multiple industry leaders such a ABB, Siemens, Apple, Janatics and MTAB in the field of automation, robotics, I4.0, iOS, 3D Printing and CNC Manufacturing. Apart from technical facilities we focus on all-round learning and development of students and have a dedicated incubation center for idea and start-up development in association with Atal Incubation Center.

GLBITM imparts education from *Undergraduate to Post-Graduate level* in the following faculties:

- Faculty of Engineering and Technology
- Faculty of Commerce and Management

OBJECTIVES

The broad aims/benefits of the eco-auditing system would be

- Environmental education through systematic environmental management approach
- Improving environmental standards
- Benchmarking for environmental protection initiatives
- Reduction in resource use
- Financial savings through a reduction in resource use
- Curriculum enrichment through practical experience
- Development of ownership, personal and social responsibility for the university campus and its environment
- Enhancement of university profile
- Developing an environmental ethic and value systems in young people

AUDIT PARTICIPANTS

On behalf of Institute:

Name	Position/Department
Dr. Rajeev Agrawal	Director, GLBITM
Mr. Barun Singh	Admin, GLBITM
Mr. Santosh Rana	Admin, GLBITM
Mr. Pushpendra Sharma	Admin, GLBITM

Audit was conducted on behalf of EHS Alliance Services:

Name	Position	Qualification
Sharad Prateek Singh	Lead Auditor	B. Tech. (Mechanical Engineering)
Vishal Kumar Singh	Co-Auditor	B. Tech. (Mechanical Engineering)
Shlok Tripathi	Co- Auditor	B. Tech. (Mechanical Engineering)

EXECUTIVE SUMMARY

An environmental audit is a snapshot in time, in which one assesses campus performance in complying with applicable environmental laws and regulations. Though a helpful benchmark, the audit almost immediately becomes outdated unless there is some mechanism in place to continue the effort of monitoring environmental compliance.

This is very first environmental audit of institute for doing their bid towards environmental protection and environmental awareness at local and global front. Audit criterion is environmental cognizance, waste minimization and management, biodiversity conservation, water conservation, energy conservation and environmental legislative compliance by the campus. A questionnaire is used during audit. This audit report contains observations and recommendations for improvement of environmental consciousness.

AREA OF IMPROVEMENTS

- Metering of Water from bore well and other sources in different uses are not available.
- Water Meter should be installed and maintain the inventory of water resource.
- Internal inspection system should be developed for various equipments available in campus.
- Environmental drills for response against spillage and leakage of chemicals in the campus.
- Plastic usage can be reduced in college campus.
- The monthly inventory of e-waste is required to be maintained in formats on a regular basis.

ENVIRONMENTAL AUDIT -QUESTIONARE

The areas of eco/environmental/green auditing to be followed/practiced by participating institutions:

I. Waste Minimization and Recycling
II. Greening
III. Energy Conservation
IV. Water Conservation
V. Clean Air
VI. Animal Welfare
VII. Environmental Legislative
VIII. General Practices

Dose any Environmental Audit conducted earlier?

No, this is first time a systematic way of monitoring their environmental eminence initiative taken by university for environment protection.

What is the total permanent population of the Institute?

	Year				Total
	First	**Second**	**Third**	**Fourth**	
Students	**1140**	**1046**	**974**	**953**	**4113**

	Male	Female	Total
Teachers	216	100	**316**
Non-Teaching Staff	143	35	**178**
Sub Total	359	135	**494**
Approximate Number of Visitors (Per day)			**55**

Where is the campus located?

The campus is Located in Knowledge Park 2, Greater Noida.

Which of the following are available in your institute?

1	Garden area	Available
2	Play ground	Available
3	Kitchen	Available
4	Toilets	Available
5	Garbage Or Waste Store Yard	Available
6	Laboratory	Available
7	Canteen	Available
8	Hostel Facility (numbers)	Yes(2)
9	Guest House	Available

Which of the following are found near your institute?

1	Municipal dump yard	Not in vicinity of institute
2	Garbage heap	No Garbage heaps
3	Public convenience	No Public Convenience
4	Sewer line	Yes there is a sewer line within campus
5	Stagnant water	No stagnant water
6	Open drainage	No
7	Industry – (Mention the type)	No
8	Bus / Railway station	Faraway from campus
9	Market / Shopping complex / Public halls	Yes

I – WASTE MINIMIZATION AND RECYCLING

<table>
<tr><td>1.</td><td>Does your institute generate any waste?
If so, what are they?</td><td colspan="4">Yes, Solid waste Canteen waste, paper, plastic, Horticulture Waste etc.</td></tr>
<tr><td>2.</td><td>What is the approximate amount of waste generated per day? (in Kilograms/month) (approx.)</td><td>Bio Degradable</td><td>Non-Biodegradable</td><td>Hazardous</td><td>others</td></tr>
<tr><td></td><td></td><td>250kg</td><td>50kg</td><td>Yes</td><td><1kg</td></tr>
<tr><td>3.</td><td>How is the waste generated in the institute managed? By
1 Composting
2 Recycling
3 Reusing
4 Others (specify)</td><td colspan="4">Reuse of one side printed Paper for internal communication. Sewage water is discharged to public Sewer. Domestic Waste is given to Municipal Corporation. Two types of Waste bins are provided at campus for biodegradable and non-biodegradable waste. Horticulture waste is also given to Municipal Corporation.</td></tr>
<tr><td>4.</td><td>Do you use recycled paper in institute?</td><td colspan="4">Yes</td></tr>
<tr><td>5.</td><td>Do you use reused paper in institute?</td><td colspan="4">Yes</td></tr>
<tr><td>6.</td><td>How would you spread the message of recycling to others in the community? Have you taken any initiatives? If yes, please specify.</td><td colspan="4">Not done in locality for awareness of resource crunches.</td></tr>
<tr><td>7.</td><td>Can you achieve zero garbage in your institute? If yes, how?</td><td colspan="4">Yes, it is achieved. Implementation of total waste management (segregation and processing) for Bio-Degradable, Paper Waste, E-Waste and Plastic Waste Management initiatives has been done.</td></tr>
</table>

II – GREENING THE CAMPUS

8.	**Is there a garden in your institute?**	**Yes, areas have been developed as Gardens.**	
9.	Do students spend time in the garden?	2-4 Hours	
10.	Total number of Plants in Campus	Plant type	Approx. number
		Trees	550
		Ornamental	1400
11.	Suggest plants for your campus. (Trees, vegetables, herbs, etc.)	Ashoka, Ficus Religeosa, and many smaller plants planted in pots.	
12.	Is the university campus have any Horticulture Department	Yes	
	Number of Staff working in Horticulture Department	Tree Gardeners and Services of External Experts are also taken	
13.	Number of Tree Plantation Drives organized by School per annum. (If Any)	Yes, tree plantation drives are organized once annually in the campus.	
14.	Number of Trees Planted in Last FY.	Not Applicable, only regular maintenance is conducted.	
	Survival Rate	Not Applicable	
15.	Plant Distribution Program for Students and Community	Yes, Saplings are distributed to Students and visitors at various Occasions.	
16	Plant Ownership Program	Various Trees are Planted and owned by Visitors as well as students.	

III – ENERGY

13.	List ten ways that you use energy in your institute. (Electricity, LPG, firewood, others). Using this list, try to think of ways that you could use less energy every day.	Electricity saves by use of CFL/LED bulbs for illumination, LPG saved by use of Pressure cookers for cooking food, initiative to use biogas from the bio-degradable waste and cow-dung (obtained from the Gau-Shala) is under progress. Alternate source of energy i.e. Solar Heater Installed.
14.	Are there any energy saving methods employed in your institute? If yes, please specify. If no, suggest some	Yes, Renewable source of energy through solar panels is being used. Use of Natural Lights and Natural Ventilation are promoted.
15.	How many CFL/LED bulbs has your institute installed?	93 % of Total Conventional bulbs are replaced by LED/CFL Lights.
16.	Are any alternative energy sources employed / installed in your institute? (photovoltaic cells for solar energy, windmill, energy efficient stoves, etc.,) Specify.	Yes, photovoltaic cells for solar energy, energy efficient stoves
17.	Do you run “switch off” drills at institute?	Yes
18.	Are your computers and other equipment’s put on power-saving mode?	Yes, In Practice
19.	Does your machinery (TV, AC, Computer, weighing balance, printers, etc.) run on standby modes most of the time? If yes, how many hours?	No

IV – WATER CONSERVATION

20.	List four uses of water in your institute	Basic use of water in campus: 1. Drinking – 4000KL/month 2. Gardening – STP treated water 3. Kitchen and Toilets – 2821KL/month 4. Others – 3100 KL/month
21.	How does your institute store water? Are there any water saving techniques followed in your institute?	01 Overhead Water Tanks. Avoid overflow of water, controlled valves are provided in water supply system. Close supervision for water supply system.
22.	If there is water wastage, specify why and How can the wastage be prevented / stopped?	No
23.	Locate the point of entry of water and point of exit of waste water in your institute. Entry- Exit-	Entry- Water comes from one Submersible Pumps at campus Exit- From Water Drainage System to STP and ETP
24.	Write down four ways that could reduce the amount of water used in your institute	Basic Four ways: 1. Close the taps after usage 2. Maintenance and monitoring of valves in supply system to avoid overflow, leakage and spillage 3. Water Conservation awareness for new students
25.	Record water use from the institute water meter for six months (record at the same time of each day). At the end of the period, compile a table to show how many litres of water have been used.	No, Water Meters available for calculation of usage of total quantity only.
26.	Does your institute harvest rain water?	Twelve number of rain water harvesting system are available.
27.	Is there any water recycling System.	Yes

V – CLEAN AIR

28.	**Are the Rooms in Campus are Well Ventilated?**	**Yes**				
29.	Window Floor ratio of the Rooms	**Very Good**				
30.	What is the ownership of the vehicles used by your school? (Please Tick ✓ only one)		Yes			
			Operator-owned vehicles			
		✓	School-owned vehicles			
			A combination of campus-owned and operator-owned vehicles			
31.	Provide details of school-owned motorized vehicles?	Buses	Cars	Vans	Other	Total
	No. of vehicles	7	14	0	4	25
	No. of vehicles more than five years old	6	12	--	2	--
	No. of Air-conditioned vehicles	--	14	--	--	14
	PUC done	Yes	Yes	Yes	Yes	Yes
32.	Specify the type of fuel used by your school's vehicles:	Buses	Cars	Vans	Other	
	Diesel	--	11	--	1	
	Petrol	--	3	--	3	
	CNG	7	--	--	--	
	LPG	--	--	--	--	
	Electric	--	--	--	--	
33.	Air Quality Monitoring Program (If Any)	Yes, Monitoring is being done by approved Laboratory				
34.	Students suffer from respiratory ailments? (If Any)	No				
35.	Details of Genset	Yes, 4 Numbers of Silent DG Set. The capacities of generators are combined is 2070 KW				

VI – ANIMAL WELFARE

37	List the animals (wild and domestic) found on the campus (dogs, cats, squirrels, birds, insects, etc.)	Birds, a variety of birds species and Squirrels are commonly found in campus. Campus has a dedicated Gau-Shala for cows and has 3 cows and 2 bulls are there with 2 calves.
36.	How many dogs in your area have undergone Animal Birth Control - Anti Rabies (ABC - AR)?	Not required
37.	Does your institute have a Biodiversity Programme or a KARUNA CLUB?	Yes, we have cows and have a dedicated space for them in the campus with dedicated managing staff. A plan in progress to implement a bio-gas generation plant from the same is in progress.

VII – ENVIRONMENTAL LEGISLATIVE COMPLIANCE

38.	Are you aware of any environmental Laws pertaining to different aspects of environmental management?	Yes
39.	Does your institute have any rules to protect the environment? List possible rules you could include.	No
40.	Dose Environmental Ambient Air Quality Monitoring conducted by the Institute?	Yes
41.	Dose Environmental Water and Wastewater Quality monitoring conducted by the Institute?	Yes
42.	Dose stack monitoring of DG sets conducted by the Institute?	Yes
43.	Is any warning notice, letter issued by state government bodies?	No
44.	Dose any Hazardous waste generated by the Institute? If yes explain its category and disposal method	Yes
45.	Dose any Bio medical waste generated by the Institute? If yes explain its category and disposal method	Yes, it is being disposed through incinerators.

VIII – GENERAL

46.	Are you aware of any environmental Laws pertaining to different aspects of environmental management?	Yes
47.	Does your institute have any rules to protect the environment? List possible rules you could include.	No
48.	Does housekeeping schedule in your campus?	Yes, Swatch Bharat movement
49.	Are students and faculties aware of environmental cleanliness ways? If Yes Explain	Yes, Periodically pollution reduction, plantation, energy conservation awareness campaigns carried out by institute
50.	Dose Important Days Like World Environment Day, Earth Day, and Ozone Day etc. eminent in Campus?	Yes
51.	Dose Institute participated in National and Local Environmental Protection Movement?	Yes, Swatch Bharat Abhiyan by students at campus.
52.	Dose Institute has any Recognition/certification for environment friendliness?	No
53.	Dose Institute using renewable energy?	Yes
54.	Dose Institution conducts a green/environmental audit of its campus?	No, this is first environmental audit done by institution
55.	Has the institution been audited / accredited by any other agency such as NABL, NABET, TQPM, NAAC etc.?	No

BEST PRACTICES/INITIATIVES FOR ENVIRONMENT

A	**Renewable Energy** A clean source of energy is utilized at campus. Efforts towards **Carbon Neutrality** The capacity of 450 KW Solar plant on building roofs is commissioned and operating.
B	**Biodiversity Conservation** Flora and fauna conservation
C	**Tree Plantation Drives** Two Drives are conducted Annually as well as Every Guest is honored by Tree Plantation at Campus.
D	**Ground Water Recharge** 12 units of Rain Water Harvesting System.
E	**E Waste Management** Regularly discarding waste off to municipal waste collector
F	**Solid Waste Management** Segregation and processing of bio-degradable waste to be turned in compost. Segregation and need based shredding of plastic waste; which is lifted by authorized municipal collector. Segregation of mixed waste which is lifted by authorized municipal collector.

RECOMENDATIONS

- Formation of Environment Policy and communicated to all faculties and other staff.
- Environmental Monitoring i.e. (Ambient Air Quality monitoring, Water and wastewater monitoring need to be conducted by UP State Pollution Control Board, approved laboratory with frequency of six month.
- Water Meter should be installed at institute for monitoring of water consumption per capita.
- Increase in Environmental promotional activities for spreading awareness at campus and in the locality.
- Environment/Green committee formation for regulating eco-friendly initiatives at campus premises and periphery.

CONCLUSION

This audit involved extensive consultation with all the campus team, interactions with key personnel on wide range of issues related to Environmental aspects. Overall, about 40% of university campus is for landscaping. The audit has identified several observations for making the campus premise more environmentally friendly. The recommendations are also mentioned with observations for institute campus team to initiate actions.

The audit team opines that the overall site is maintained well from environmental perspective. There is no major observations but few things are important to initiate urgently are metering of water usage per person, rainwater harvesting recharge; water balance cycle and periodic inspection of buildings; environment policy and initiatives like composting and segregation & processing of plastic waste should be initiated urgently.

REFERENCE

- The Environment [Protection] Act – 1986 (Amended 1991) & Rules-1986 (Amended 2010)
- The Petroleum Act: 1934 – The Petroleum Rules: 2002
- The Central Motor Vehicle Act: 1988 (Amended 2011) and The Central Motor Vehicle
- Rules:1989 (Amended in 2005)
- Energy Conservation Act 2010.
- The Water [Prevention & Control Of Pollution] Act – 1974 (Amended 1988) & the Water (Prevention & Control of Pollution) Rules – 1975
- The Water [Prevention & Control Of Pollution] Cess Act-1977 (Amended 2003) and Rules-1978
- The Air [Prevention & Control Of Pollution] Act – 1981 (Amended 1987) The Air (Prevention & Control of Pollution) Rules – 1982
- The Gas Cylinders Rules – 2016 (Replaces the Gas Cylinder Rules – 1981
- E-waste management rules 2016
- Electrical Act 2003 (Amended 2001) / Rules 1956 (Amended 2006)
- The Hazardous Waste (Management and Handling and Trans-boundary Movement) Rules, 2008 (Amended 2016)
- The Noise Pollution Regulation & Control rules, 2000 (Amended 2010)
- The Batteries (Management and Handling) rules, 2001 (Amended 2010)
- Relevant Indian Standard Code practice