



ANNEXURE - XII
REPORT OF ENVIRONMENTAL AUDIT(2017-18)
INTERNAL QUALITY ASSURANCE CELL
BABA BHAIRABANANDA AUTONOMOUS MAHAVIDYALAYA,
CHANDIKHOLE
District - Jajpur, Odisha-755044

The National Assessment and Accreditation Council, New Delhi (NAAC) has made ENVIRONMENTAL AUDIT mandatory from the academic year 2017 for all Higher Educational Institutions as a part of corporate social responsibility to ensure to develop a green environment.

In view of the NAAC circular, the College Management decided to conduct an external Green Audit by a team of experts headed by **Dr. Kunja Bihari Satapathy**, Ex-HOD, PG Dept. of Botany, Utkal University and Emeritus Professor in Botany, Centurion University, Bhubaneswar and **Mr. Binod Chandra Mohapatra**, Divisional Manager, Orissa Forest Development Corporation, Dhenkanal.

Environmental Audit focuses on the various activities prevailing in the Campus to develop green and ecofriendly environment like, 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.

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 EHS Alliance 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 THE INSTITUTION

B.B. (Auto.) Mahavidyalaya, Chandikhole is a Government Aided Educational Institution established in the year 1976 on the foot of hill Varunabanta with greenery and scenic environment. It is one of the leading Educational Institution of the State affiliated to UtkalUniversity and catering the educational needs of around 3500 students with rural and tribal origin. The Institution has been conferred **Autonomous Status** by UGC from this current session. The College connects 6 (six) adjacent districts of the state and remains in the vicinity of the largest industrial hub

KALINGA NAGAR. It is located at a distance of 25 Kms from the diamond triangle Lalitagiri-Ratnagiri-Udayagiri with their Buddhist relics. It has attracted the attention of the learners of the entire state due to its commendable success at various levels of examinations and unique sense of discipline, punctuality, unity, honesty, accountability and best practices.

The college has been reaccredited by NAAC in the year 2015 with B grade. The biggest asset of College is its team of dedicated teaching and non-teaching staff members of around 120 whose continuous and sincere efforts have helped the College to pass through 40 years in materializing the goals of economically weaker students in the present changing scenario.

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 College campus and its environment
 - Enhancement of HEI's profile
 - Developing an environmental ethic and value systems in young people
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AUDIT TEAM

EXTERNAL MEMBERS

1. **Dr.Kunja Bihari Satapathy**, Ex-HOD, PG Dept. of Botany, UtkalUniversity and Emeritus Professor in Botany, Centurion University, Bhubaneswar

2. **Mr. Binod Chandra Mohapatra**, Divisional Manager, Orissa Forest Development Corporation, Dhenkanal

INTERNAL MEMBERS

1. Dr. Birendra Kumar Mishra, HOD, Chemistry
2. Mr. Dhaneswar Mohanty, HOD, Physics
3. Dr. Rama Chandra Mohanty, Reader in Education
4. Mr. Bijay Kumar Samal, Reader in Mathematics
5. Dr. Prasanna Kumar Mohapatra, Reader in Economics
6. Mrs. Ranju Sahoo, Reader in Zoology
7. Mr. Ambika Prasad Mishra, HOD, Botany
8. Dr. Muktikanta Nayak, Department of zoology

EXECUTIVE SUMMARY

Environmental auditing is the process of identification and determination of the institution's practices in creating awareness and practicing the environment friendly measures. Over the period of time overexploitation of resources like energy, water etc. have resulted in the environmental degradation. It is necessary to check whether our ways of living and handling resources are not going to cause detrimental effects in our surroundings.

An environmental audit is a snapshot in time in which one assesses campus performance in complying with applicable environmental laws and regulations. Though it is a helpful benchmark, the audit almost immediately becomes outdated unless there is some mechanism in place to continue the effort of monitoring environmental compliance. It aims at summarizing the college's contribution and its activeness in creating awareness and consciousness in practically applying the environmental friendly measures towards an institute.

This environmental audit conducted in between 16.4.2018 and 30.4.2018 in accordance with NACC guidelines; UGC Programme and doing their best 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

- Environment Policy to be adopted by the College Campus.
- 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
- Stack height should be as per DG Rules
- Storage of chemicals like; paints, gums resins, oils, lubricants, acids etc. in designated place and safety/warning signs should be displayed.
- Internal inspection system should be developed for various equipments available in campus.
- Waste Management plan should be prepared for the campus.
- Environmental drills for response against spillage and leakage of chemicals in the campus
- Plastic usage can be reduces in college campus.
- The monthly inventory of e-waste is required to be maintained in formats on regular basis.

ENVIRONMENTAL AUDIT - QUESTIONNAIRE

The areas of environmental auditing to be followed in the following context:

- Waste Minimization and Recycling
- Greening

- Energy Conservation
- Water Conservation
- Clean Air
- Animal Welfare
- Environmental Legislative
- General Practices

Dose any Environmental Audit conducted earlier?

No (This is first time a systematic way of monitoring their environmental eminence initiative taken by Institution for environment protection.)

What is the total permanent population of the Institute?

	Total
Students	1978
Teachers	79
Non Teaching Staff	37
Sub Total	2094
Approximate Number of Visitors (Per day)	100
What is the total number of working days of your campus in a year?	240

Where is the campus located?

The campus is Located on the foot of hill Varunabanta with complete greenery and scenic surrounding.

Which of the following are available in your institute?


Garden area	Available
Play ground	Available
Kitchen	Available
Toilets	Available
Garbage/Waste Store Yard	Available
Laboratory	Available
Canteen	Available
Hostel Facility	Available
Guest House	Not Available

Which of the following are found near your institute?

1	Gram Panchayat dump yard	Not in vicinity of institute
2	Garbage heap	No Garbage heaps
3	Public convenience	Yes , public convenience is available
4	Sewer line	4 km sewer line within campus
5	Stagnant water	No stagnant water
6	Open drainage	No
7	Industry – (Mention the type)	Yes (Stone Crusher)
8	Bus / Railway station	Yes (About 4 kms away)
9	Market / Shopping complex / Public halls	Yes

I – WASTE MINIMIZATION AND RECYCLING

1.	Does your institute generate any waste? If so, what are they?	Yes, Solid waste, Domestic waste from canteen and hostel, paper, plastic, Horticulture Waste etc			
2.	What is the approximate amount of waste generated? (in Kilograms/month) (approx.)	Bio Degradable	Non-Biodegradable	Hazardous	others

		2000kg	120kg	Negligible	<10kg
3.	How is the waste generated in the institute managed? By 1 Composting 2 Recycling 3 Reusing 4 Others (specify)	1. Reuse of one side printed Paper for internal communication. 2. Sewage water is discharged to the discharge pit to raise the ground water level. 3. Domestic Waste generated from canteen and hostels is dumped. Two types of Waste bins are provided at campus for biodegradable and non-biodegradable waste at strategic points. 4. Horticulture waste is managed through composting.			
4.	Do you use recycled paper in institute?	Yes			
5.	Do you reuse used paper in institute?	Yes			
6.	How would you spread the message of recycling to others in the community? Have you taken any initiatives? If yes, please specify.	Environmental awareness programmes are conducted by the NCC and NSS units of the college in the local community. 			
7.	Can you achieve zero garbage in your institute? If yes, how?	Not yet achieved. Efforts in this regard are being taken by the college.			

II – GREENING THE CAMPUS

8.	Is there a garden in your institute?	Yes, about 7000 Sq. Meter areas are developed as Gardens.	
9.	Do students spend time in the garden?	Yes.	
10.	Total number of Plants in Campus (Different plant species are annexed as Annexure – I)	Plant type	Approx. number
		Trees	15000
		Medicinal	100
		Ornamental	150

11.	Suggest plants for your campus. (Trees, vegetables, herbs, etc.)	Teak, Sandal, FicusReligeosa, Boganvella, Alovera and many more as per geographical regime.
12.	Is the campus have any Horticulture Department	No
	Number of Staff working in Horticulture Department	----
13.	Number of Tree Plantation Drives organized by College per annum. (If Any)	Plantation drives are regularly organized by the college on special occasions like college foundation day, Independence day, Republic day, NCC day, World Environmental day etc.
14.	Number of Trees Planted in Last FY.	500
	Survival Rate	80%
15.	Plant Distribution Program for Students and Community	Yes, Saplings are distributed to Students and in adopted villages at various Occasions.
16	Plant Ownership Program	Various Trees are Planted and owned by Visitors as well as students. The Name plates are also displayed near the plants.

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.	<ul style="list-style-type: none"> ➤ Electricity for illumination of bulbs, fans, running computers, Air Conditioners, Laboratory equipment etc. ➤ LPG for cooking food in hostels and canteen, conducting Laboratory experiments. ➤ Alternate source of energy i.e. Solar light Installed.
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<p>14. Are there any energy saving methods employed in your institute? If yes, please specify. If no, suggest some</p>	<p>Yes. The consumption electricity is reduced by;</p> <ul style="list-style-type: none"> • LED bulbs are being used for illumination • Desktops with 15'/18' monitor • Star rated Air Conditioners and refrigerators • Running of Air Conditioners at above 24°C • Well ventilated rooms • By using Solar lights <p>The consumption of fuel is reduced by;</p> <ul style="list-style-type: none"> • Use of pressure cookers in canteen and hostels • Discouraging students and staff members from using vehicles running by fossil fuels
<p>15. How many CFL/LED bulbs has your institute installed?</p>	<p>All Conventional bulbs and tube lights are replaced by LED Lights.</p>
<p>16. Are any alternative energy sources employed / installed in your institute? (photovoltaic cells for solar energy, windmill, energy efficient stoves, etc.) Specify.</p>	<p>Yes, photovoltaic cells for solar energy, energy efficient stoves</p>
<p>17. Do you run “switch off” drills at institute?</p>	<p>Yes</p>
<p>18. Are your computers and other equipment's put on power-saving mode?</p>	<p>Yes</p>
<p>19. Does your machinery (TV, AC, Computer, weighing balance, printers, etc.) run on standby modes most of the time? If yes, how many hours?</p>	<p>No</p>

IV – WATER CONSERVATION

<p>20. List four uses of water in your institute</p>	<p>Basic use of water in campus:</p> <ol style="list-style-type: none"> 1. Drinking – 6,000KL/month 2. Gardening – 10,000KL/month 3. Kitchen and Toilets – 4,000KL/month
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21.	How does your institute store water? Are there any water saving techniques followed in your institute?	10 nos of Overhead Water Tanks installed for storage of water. Overflow of water is avoided by installing controlled valves Close supervision for water supply system.
22.	If there is water wastage, specify why and How can the wastage be prevented / stopped?	No. Close supervision for water supply system.
23.	Locate the point of entry of water and point of exit of waste water in your institute. Entry- Exit-	Entry- Overhead tanks loaded by lifting ground water Exit- Discharge pit
24.	Write down four ways that could reduce the amount of water used in your institute	Basic Four ways: 1. Sensitizing the users by fixing leaflets for water conservation at strategic points 2. Maintenance and monitoring of valves in supply system to avoid leakage and spillage 3. Control of overflow of water by using sensor 4. 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 of water.
26.	Does your institute harvest rain water?	Yes.
27.	Is there any water recycling System.	No

V – CLEAN AIR

28.	Are the Rooms in Campus are Well Ventilated?	Yes	
29.	Window Floor ratio of the Rooms	Adequate	
30.	What is the ownership of the vehicles used by your college? (Please Tick ✓ only one)	✓	No
			Operator-owned vehicles

		College-owned vehicles				
		A combination of campus-owned and operator-owned vehicles				
31.	Provide details of college-owned motorised Vehicles of the locality?	Buses	Cars	Vans	Other	Total
	No. of vehicles	--	--	--	--	--
	No. of vehicles more than five years old	--	--	--	--	--
	No. of Air conditioned vehicles	--	--	--	--	--
	PUC done	--	--	--	--	--
32.	Specify the type of fuel used by Vehicles of the locality:	Buses	Cars	Vans	Other	
	Diesel	✓	✓	--	✓	--
	Petrol	--	✓	--	✓	
	CNG	--	--	--	--	
	LPG	--	--	--	--	
	Electric	--	--	--	--	
33.	Air Quality Monitoring Program (If Any)	No				
34.	Students suffer from respiratory ailments? (If Any)	No				
35.	Details of Genset	Yes, 1 Numbers of Kirlosker Silent DG Set The capacities of DG's are 250 KVA and 2 numbers of				

VI – ANIMAL WELFARE

37.	List the animals (wild and domestic) found on the campus (dogs, cats, squirrels, birds, insects, etc.)	Monkeys, Monitors, Snakes, Rabbits, Squirrels, Birds etc. are abundantly found in campus. A variety of birds and animal species are available but these are not harmful to human so institute doing their best for its conservation. (Annexure – II)
36.	How many dogs in your area have undergone Animal Birth Control - Anti Rabies (ABC - AR)?	Not applicable
37.	Does your institute have a Biodiversity Programme or a KARUNA CLUB?	No

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	No
45.	Dose any Bio medical waste generated by the Institute? If yes explain its category and disposal method	Yes. Used sanitary napkins are disposed using incinerator installed in ladies hostel

VIII – GENERAL

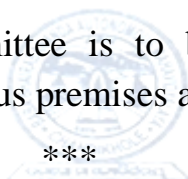
46.	Are you aware of any environmental Laws pertaining to different aspects of environmental management?	Yes
47.	Does your institute have any rules to protect the environment? List possible rules you could include.	No
48.	Does housekeeping schedule in your campus?	Yes, Housekeeping activity of the college is administered by a team regularly and on special occasions like Swatchha Barat Abhiyan, College Foundation Day etc.
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 and local communities including places of historical importance
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.?	Yes. Reaccredited by NAAC in 2015

BEST PRACTICES/INITIATIVES FOR ENVIRONMENT

A	Renewable Energy Solar light systems are installed in college campus and hostel.	
B	Biodiversity Conservation Flora and fauna conservation	The study of flora and fauna around the college campus is regularly monitored by the department of Botany and Zoology for the academic interest of the students
C	Tree Plantation Drives Plantation drives are conducted by the college on special occasions with the participation of invited guest.	Yes. Plantation drives are regularly organized by the college on special occasions like college foundation day, Independence day, Republic day, NCC day, World Environmental day etc.
d	Ground Water Recharge	Yes. Ground water is recharged by Rain Water Harvesting System.
E	Pollution Reduction	Entry of Personal Vehicles of Staff and Students into the campus is discouraged.
F	E Waste Management	Maintenance of electronic devices are being regularly maintained by the college to reduce the generation of e Waste.
G	Solid Waste Management	Yes. Solid wastes generated in the campus are managed through composting, land filling etc.
H	Adoption of Village CSR	Sanjay Nagar and Ranibandhi are the two Villages adopted by the college
I	Water Conservation	Yes.

RECOMENDATIONS

- ✓ To form an Environmental Policy and its strict implementation by staff and students.
- ✓ Environmental Monitoring i.e. Ambient Air Quality monitoring, Stack Monitoring of DG sets, Water and wastewater monitoring need to be conducted by an approved agency with a frequency of six month.
- ✓ e-waste monthly inventory be maintained at campus as per e-waste rules 2016.
- ✓ Water Meter should be installed at institute for monitoring of water consumption at strategic points.
- ✓ Rain water harvesting system is to be strengthened.
- ✓ Installation of solar panels for the use of renewable energy.
- ✓ Increase in Environmental promotional activities through awareness programmes.
- ✓ Environment/Green committee is to be activated for regulating eco-friendly initiatives at campus premises and periphery.



TEAM MEMBERS OF ENVIRONMENTAL AUDIT

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Dr. Prasanna Kumar Mohapatra

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