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From

Dr Apurba Ratan Ghosh
Professor

Ref. No.

09/07/2022

Date

To

The Principal
Bankura Sammilani College
Kenduadihi, Bankura
West Bengal

Sir

After physical verification and necessary assessment of the report of "Green Audit" and Environmental Audit prepared by your College, here we are submitting this Audit Report of "Green Audit" of your College for the years 2019 -'20, 20-'21 and 2021-'22 for your kind perusal in the attached sheet as an Annexure-1.

Acknowledge and oblige.

Yours,

Dr Apurba Ratan Ghosh
Professor, Environmental Science
The University of Burdwan
Purba Bardhaman

Prof. A R Ghosh
Environmental Science
The University of Burdwan
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Report of Green Audit

1.0 Introduction

Green Audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Green Audit' aims to analyze environmental practices within and outside the College campus, which have an impact on the eco-friendly ambience as well as stakeholders. It was initiated with the motive of inspecting the work conducted within the organizations whose activities can cause risk to the health of inhabitants and the environment. Green audit requirement of NAAC, National Assessment and Accreditation Council under the Criteria VII which is a self-governing organization of India which declares the Institutional Grade.

1.1 About the College

Bankura Sammilani College is situated in the village Kenduadihi, West Bengal, in the midst of the district Bankura of West Bengal, surrounded by densely populated residential complexes. It was established by the Government of West Bengal in 1st September 1948. Initially, it was started with the help of a welfare organization of the area, Bankura Sammilani Trust Body (established in 1911) under the affiliation of the University of Calcutta. During 1962, it became an affiliated college of under the University of Burdwan, now it is under the Bankura University, since 2017.

It has got its co-educational status in the year 1992-'93. College has started their teaching programmes by commencing Intermediate Science taking only 100 number of boys' student and 06 faculties. Now, it is running 17 Undergraduate Honours and 15 UG programmes and 02 Postgraduate courses (Chemistry and English), presently there are total number of 3571 students. It was first accredited by NAAC on 2006 with a grade of B+, subsequently it has completed its Second Accreditation Cycle with a grade of B+ in the year 2016. During the course of time, the institutional vision has widened and developed to establish the goals of progress and academic development of rural students from all socio-economic and religious backgrounds.

Presently College has 03 students' hostel (02 Boys & 01 for Girls) and one playground.

2.0 Executive Summary

In accordance with the Format of Green Audit and Evaluation Plan of Bankura Sammilani College, Govt. of West Bengal, Kolkata, for the years 2019 -'20, 20-'21 and 2021-'22, and audit was conducted in the month of July 2022.

The rapid urbanization and economic development along with population explosion with high density at Bankura and adjacent areas have led to several environmental and ecological crises. Bankura Sammilani College, is concerned and believes that there is an urgent need to address these local problems and redress the conditions. Being an old traditional built institution of higher learning, the College 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 College.

3.0 Significant Observations

1. College has prepared Green Environmental policy and has taken efforts for sustainable development on the College campus.
2. College has formed the team of faculty and student as members of College Environmental Committee, constituted on 2019-'20 which work to maintain biodiversity on the campus and also participate in preventing pollution in and around the campus. College has a total campus area of 33500 sq.mt. and green area of 5607 sq.mt.
3. Students of different hostels during the year are engaged in diversity measure of bird, butterfly and plants and cleanliness programme, also helps the local people to know about the floral and faunal diversity of their locality. Some of the best practices such as campus cleaning, maintaining tree plantation, introducing plastic free zone, No Vehicle Day, *etc.*, are followed in the campus.
4. College has installed the solar panels as renewable source of energy the College.
5. College is maintaining the disposal of all sorts of wastes, e-wastes and hazardous chemicals wastes. College has constructed a vermicomposting pits for organic wastes.
6. College has conducted Environmental Awareness programmes and workshop for faculty and students. Eco-club volunteers are involved in measurement of water quality, noise levels on regular basis.
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 People's Biodiversity Register (PBR).

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

Through professional judgement, as far as possible and appropriate audit procedures I have observed and gathered evidences 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 exhibited at the time of the audit with the established criteria.

GREEN AUDIT WORKING FORMAT

5.0 Audit Framework and detailed findings

The following audit framework is used for preparing a consolidated report of Green Audit and overall Environmental Audit for the years 2019 -'20, 20-'21 and 2021-'22. The framework also lists the findings and observations for every criterion.

Control objectives	Control(s)	Audit Observations
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 College has used some controls to reduce the absolute amount of waste that it produces from the departments, staff offices <i>etc.</i>
	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.	College is taking the advantages of waste management provided by local agency. Formal MoU may be maintained for 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 College uses different bins for disposal of differently segregated wastes. Food-wastes from Canteens and Hostel kitchen and the fallen dead leaves from the garden can be managed by composting at campus.
	Recycle or safely dispose of white goods, computers and electrical appliances.	Some safe disposal methods are adopted for electrical wastes, printer cartridges <i>etc.</i> It may be strengthened.
	Use reusable resources and containers and avoid unnecessary packaging where possible	No, the College has not so far used reusable resources and containers and unnecessary packaging where possible.
	Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated	The College has limited scope of accessible and well-publicized collection points for recyclable waste.
Maximize the proportion of waste that is recycled & minimize the quantity of non-recyclable refuse	Make specific arrangements for events, such as cultural Events, internal and external seminars and conferences, where significant recyclable waste is likely to be produced, in order to both	The College practices some specific arrangements for Cultural Events, National seminars and Conferences, where significant recyclable wastes are likely to be



	minimize the waste produced and maximize what is recycled/reused	produced, in order to both minimize the waste produced and maximize what is recycled/reused.
	Promote reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives	The College has limited scope of reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives.
	Dispose all waste, whether solid or otherwise, in a scientific manner and ensure that it is not released directly to the environment	Yes, the College disposes all wastes, whether solid or otherwise; it is not released directly to the environment.
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.	College is able to maintain carbon-neutral electricity options. 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 College has no choice other than State Electricity Board.
	Look into the possibility of on-site micro-generation of renewable electricity.	College has installed the Solar panels.
	Give preference to the most energy efficient and environmentally sound appliances available, this includes only using energy-saving light bulbs	The College is using LED (45%) as much as practicable.
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. But regular monitoring system is lacking.
	Ensures that all electronic and 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	Students and all the members are used to follow this practice.
	If there are equipment's running on standby mode, reduce the energy	Some of the equipment's are running on standby mode.



	consumption on standby mode or minimize the running of equipment's 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 is positive about increasing greenery by plantation and maintaining plants as much as possible; cleanliness is maintained by the students. Tree plantation programmes are followed in different occasions on regular basis.
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 College is well connected through bus and train services, so all of them mostly avail train and bus services.
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	College does not have any common bus services to all stakeholders. Most of the students are habituated to use bicycle and bikes as a means of transport; some of the faculty members use private car.
	Promote car sharing / car pool among the students and faculty members	No, the College does not promote car sharing/car pool among the students and faculty members.
Minimize consumption of water.	Repair sources of water leakage, such as dripping taps and showers as quickly as possible.	Checking and maintenance of pipelines are done to control the water wastage. Misuse and wastage of water from sources are taken care of. College follows the mechanism of recycling and reuse of water.
	Install appliances which reduce water consumption	Practised as much as possible.
	Encourage a decrease in water usage among staff, students and conference guests	College has taken some steps to encourage a decrease in water usage among staff, students and conference guests.
	Use an efficient and hygienic water storage mechanism is to minimize the loss of water during storage	College 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	All the departments have Water filter with Aqua guards at the strategic locations in the campus for the students, which are under AMC.

	water is not below the industry average for such equipment's used in similar capacity	
	Install Water recycling mechanism, such as rain water harvesting system	No, this is not yet installed. College has an effective rainwater harvesting system and use of wastewater 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 and all the toilet cleaners are Eco-friendly.
	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 <i>etc.</i>
	Dispose the chemical waste generated from the laboratories in a scientific manner	Proper disposal system of toxic and hazardous chemicals is not 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	College has already started to prepare a garden in front of the Campus. College has a medicinal plants' garden maintained by students. Students are used to handle the People's Biodiversity Register.
	Encourage the faculties and students to plant trees in the garden.	College conducts tree plantation programmes through students and staff members on regular basis and in different occasions. Choice-plantation, fruit-plantation like palm, dates <i>etc.</i> , 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.
Ensure environmental	that Conduct environmental awareness workshops as a part of the program.	Environmental awareness programmes are organized for

awareness is created		conservation of nature and natural resources, wildlife, and biodiversity. College celebrates World Environment Day, World Biodiversity Day, etc.
Ensure that environmental awareness is created	Create awareness of environmental sustainability and takes actions to ensure environmental sustainability.	College conducts seminars and awareness programmes to ensure environmental sustainability, and involvement of students is encouraging.
	Reduce the rate at which the University/Institute contributes to the depletion and degradation of natural resources	College is not directly or indirectly participating in depletion 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 ENVS paper of 50 marks (4 credits) in the syllabus as per University guidelines for all the students of all streams to develop Environmental Awareness.
Ensure that the buildings conform to green standards.	Review architecture of existing buildings and reviews ways, in consultation with experts, to reduce usage of energy for such buildings, offering greatest efficiency for energy and water usage, and reducing carbon emission	Presently there is no new constructions in the Campus.
Ensure that the Environmental Policy is enacted, enforced and reviewed	Establish the University/Institute Environmental Committee that will hold responsibility for the enactment, enforcement and review of the Environmental Policy. The Environmental Committee shall be the source of advice and guidance to staff and students on how to implement this Policy	College has an Environmental Committee and Eco-Club conducted so far thirteen (13) meetings since 2019.
	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 and finance	Environmental Committee is constituted by the representative from all such sections to maintain the campus.
Ensure that the Environmental Policy is enacted, enforced and	Ensure that on the Environmental Committee there will be the Green Officer from an external agency who is	College has one Coordinator, but no Green Officer as such in the Environmental Committee.

reviewed	engaged in the profession of providing guidance on environmental impact	
	Ensure that the Environmental Committee will review the Environmental Policy on an annual basis, and will monitor progress and set measurable targets wherever possible	Environmental Committee has taken the responsibility to follow the environmental policy. Students of Boys and Girls Hostel maintain plantation program with the help of Eco-Club volunteers. College celebrates 'No Vehicle Day'. Student members are engaged in destruction of mosquito breeding pools on regular basis.
	Ensure that the Environmental Policy is enforced regardless of whether its requirements exceed the mandate of the law	Initiative has been taken to adopt the Green policy.
	Require that every staff and student member recognizes their responsibility to ensure that the commitments in the Environmental Policy are properly put into practice	Members of the Environmental Committee are following the good practices.
	Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings	First 'Green Audit' for the years 2019-'20, '20-'21 and '21-'22 has been conducted on July, 2022.

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. The College should go for ISO 9001:2015 Certification.2. The College should install Effluents Treatment Plant (ETP) and Sewage Treatment Plant (STP) because of Chemistry Department.3. Advanced Composting system may be developed for bio-wastes.4. College may go for partnership with Local Municipality/Gram Panchayat in monitoring of disposal of solid wastes through providing outreach program.5. Disposal of chemical wastes, e-wastes through licensed agents6. Vermicomposting system may be strengthened for its use in the College garden along with other manures.
Reduce energy consumption, especially of energy derived from fossil fuels,	<ol style="list-style-type: none">1. Use energy efficient lighting fully in and around the campus; outdoor lighting be managed and followed in the order of eco-friendly system like Solar street lights.2. Installation and functioning of Solar Panels be started as early as possible.
Maintenance of Campus and biodiversity	<ol style="list-style-type: none">1. PUC (Pollution under control) certificate for all the vehicles entering the campus to be made mandatory and to be checked by security.2. Continuation of maintenance of PBR year wise.3. Choice-plantation, fruit-plantation, artificial nesting, etc., be followed to maintain attract birds and other animals within the campus.4. Butterfly garden may be started.
Proper cleaning of water storage Tanks	<ol style="list-style-type: none">1. Proper initiative for cleaning the water tanks on regular basis considering the health & hygiene of the all stakeholders.2. Wastage of water be managed carefully.
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 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 'Environmental Audit' and 'Green Audit'

including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity.

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.

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 July 9th 2022 and report was prepared based on the physical verification and validation and interaction with the members of the College.

9.0 Declaration

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

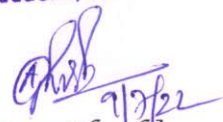
Date: 09/07/2022

Place: Bankura Sammilani College



Signed by
College Principal with Seal

PRINCIPAL
Bankura Sammilani College
Kenduadihi, Bankura



[Apurba Ratan Ghosh]

Expert

Prof. A R Ghosh
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