



DEPARTMENT OF ENVIRONMENTAL SCIENCE
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From

Dr Apurba Ratan Ghosh
Professor

Ref. No.

02/08/2022

Date

To

The Principal
Mankar College
Mankar
Purba Bardhaman
West Bengal

Sir,

In accordance with the application format of 'Environmental Audit' and/or 'Green Audit' here, I have prepared the Audit Report of your Institution for the year 2020-'21 in the attached sheet as an Annexure-1.

We request you to please acknowledge and oblige.

Yours,

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

Report of Environmental Audit/Green Audit

1.0 Introduction

The Environmental Audit or Green Audit can be referred as systematic identification, quantification, recording, reporting and analysis of the different aspects as well as components of environmental diversity. The 'Environmental Audit'/ 'Green Audit' aims to evaluate the various parameters involved in environmental practices in and around the HE Institutional campus, actually, it has some impacts on the congenial and environment-friendly atmosphere as well as stakeholders. It is formulated with an objective of looking after the practices performed by the authority within the institution, otherwise which may cause risk to the health of dwellers and the environment. Under the present format of AQAR and SSR Environmental Audit/Green audit is a mandatory factor as per requirement of National Assessment and Accreditation Council (NAAC) which is a self-governing organization of India which declares the Institutional Grade.

1.1 About the College

Mankar College, Mankar located in a rural area under 'Mankar Gram Panchayat', was established in 1987 as a degree College started with the subjects like Political Science, Economics, Commerce, and in pass course subjects like Physics and Mathematics affiliated to University of Burdwan. After College has introduced a number of new subjects like Bengali, English, History and Sanskrit. It was first accredited by NAAC with Grade B on 2009, it has also completed its Second Cycle on 2016 with Grade of B⁺. The College has a lush green garden containing some very rare plants sprawling over a vast expanse of land inside the campus and one pond for fish culture on lease as a natural water recharging system. The canopy of the trees provides carbon neutrality also hosts a wide variety of wild creatures. Including different types of butterflies and insects. In course of time, the institutional vision has widened and developed to establish the goals to provide higher education as well as quality education to the economically weaker and underprivileged section of the society. Presently, there are 12 Honours subjects and 4 General subjects including Physical Education. Presently, the College has been able to introduce PG Programme in Bengali during 2018-'19. There is no sponsored project in this College.

There is one UGC Girls Hostel outside the College campus with 50 boarders.

2.0 Executive Summary

During the initial planning of the audit, an analysis was conducted in order to identify, evaluate and prioritize the risks associated with the environmental sustainability.

In accordance with the Format of Green Audit and Evaluation Plan, Mankar College, West Bengal has prepared it for the year 2020-'21 and Audit was conducted in the month of August 2022. Mankar 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 is to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. With this in mind, the specific objectives of the audit are to evaluate the adequacy of the management control framework of environmental sustainability as well as the degree to which the departments are in compliance with the

applicable regulations, policies and standards. The analysis was based upon an examination of the policies, manuals and standards that govern the environmental sustainability, on data analysis, and on the results of preliminary interviews with personnel considered key in the environmental management in the campus. The criteria and methods used in the audit were based on the identified risks. The methodology used included physical inspection of the campus, review of the relevant documentation, and interviews.

3.0 Significant Observations

1. College has a good green ambience covering 45,981.29 sq. m approx. including green area of 22,643.45 sq.m and "College Environmental Committee" working since 2021 and conducted so far two meetings during the year 2020-'21 following Green Environmental policy and has taken efforts for maintaining greenery in the College campus.
2. College has formed the College Environmental Committee.
3. College has adopted some best practices like *Swachh Bharat* programme in Campus, Campus by NSS.
4. The College has a museum possessing some rare collections like a Gita on 101 palm leaves.
5. College has taken initiative to install the solar panels.
6. College is maintaining the disposal of all sorts of wastes and hazardous chemicals wastes. E-wastes are channelized for recycling.
7. College has conducted Environmental Awareness programmes and workshop for faculty and students, and involved the students in maintaining the cleanliness of the campus.
8. All teaching and non-teaching staff members, students are advised to use recyclable materials for storing their food, water *etc.*, to reduce the wastes.
9. College has a pond inside campus maintained under lease and which is used as a natural water recharge and proposed for pisciculture.
10. College has proposed to celebrate "NO VEHICLE DAY" once in a month.

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

As far as possible and appropriate audit procedures 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.



GREEN AUDIT WORKING FORMAT

5.0 Audit Framework and detailed findings

The following audit framework is used for conducting Green Audit in Year 2020-'21. 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> , through composting.
	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 has taken initiative for disposal of wastes through Mankar Gram Panchayat. Formal MoU be initiated.
	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 bins for disposal of differently wastes. Management of organic wastes by composting inside the campus. Un-recycled cardboard produced in or collected from departments, gardens, offices and class rooms be managed through proper disposal.
	Recycle or safely dispose of white goods, computers and electrical appliances.	Safe disposal methods are followed for electrical wastes, printer cartridges <i>etc.</i> , through E-License holder for collection of E-wastes particularly.
	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 minimize the waste produced and maximize what is recycled/reused	The College practices a few arrangements for events, such as Cultural Events, International and National seminars and Conferences, where significant recyclable wastes are likely to be disposed through Panchayat.
	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	It is advised to College to dispose all wastes, whether solid or otherwise, through Gram Panchayat and ensures that 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 has initiated a proposal for production of their own Solar electricity. 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.	Proposal of Solar Panels is initiated.
	Give preference to the most energy efficient and environmentally sound appliances available, this includes only using energy-saving light bulbs	The College is using mostly LED; producing 90% e-notice and 10% hard copy for academic & administrative purposes also using WhatsApp.
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	Students be engaged to check misuse of electricity. All the stakeholders be aware in 'switch off drill' to save electricity.
	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	Regular monitoring system is lacking.
	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 has huge natural greenery; cleanliness is maintained by the students. Tree plantation programmes are followed in different occasions.
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 has its own Cycle Stand, Bike Stand and is well connected through train and bus services, so all of them mostly



		avail bus/train services, e-Rickshaw, etc.
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 require any common bus services to all stakeholders.
	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 because of eco-friendly e-Rickshaw.
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	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 developed a mechanism of testing/monitoring the quality of drinking water to maintain the hygienic water on regular basis.
	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	College has all together 5 ROs and 3 Aqua Guards at the strategic locations in the campus for the students.
	Install Water recycling mechanism, such as rain water harvesting system	Two harvesting pits are prepared to collect rain water from the Main building.
	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.
	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	Hazardous chemical wastes are not produced in the campus.

	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 within the Campus. College has a small medicinal plants' garden.
	Encourage the faculties and students to plant trees in the garden.	Students are engaged in tree plantation programme in different occasion like WED <i>etc.</i> Choice-plantation, orchard, fruit-plantation like jack-fruit, mango, lemon, sabeda (mud apples) <i>etc.</i> , are present within the campus. One water body is maintained by private party under lease for fish culture and also act as natural-water recharging system.
	Reviews periodically the list of trees planted in the garden periodically	Periodical maintenance be followed.
Ensure that environmental awareness is created	Conduct environmental awareness workshops as a part of the program.	Environmental awareness programmes are organized for conservation of nature and natural resources, wildlife, and biodiversity. College celebrates World Environment Day, Tobacco Day, <i>etc.</i>
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	New constructions has followed the WB-Contractor Green Compliance.
Ensure that the Environmental Policy	Establish the University/Institute Environmental Committee that will hold responsibility for the enactment, enforcement	College has an Environmental Committee and conducted so far two meetings since 2020-'21.

6.0 Recommendations

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

Criteria	Recommendations
Publication of Audit Report	Resolutions of the "College Environmental Committee" along with audit report be published in the College website.
Maximize the proportion of waste that is recycled & minimize the quantity of non-recyclable refuse	1. The College should go for ISO 9001:2015 Certification. 2. Advanced Composting system may be developed for bio-wastes. 3. College may go for partnership with Mankar Gram Panchayat in monitoring of disposal of solid wastes through providing outreach program.
Reduce energy consumption, especially of energy derived from fossil fuels	1. Use energy efficient lighting fully in and around the campus; outdoor lighting be managed and followed in the order of eco-friendly system. 2. 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	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 for different locations by students. 3. College is advised to main a Butter-fly garden inside the campus.
Proper maintenance of wastes	1. Total wastes including solid, liquid, <i>etc.</i> , wastes be managed carefully.
Project-based learning on Environment related subjects	1. More number of projects be initiated 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 '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 2nd August 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: 02/08/2022

Place: Mankar College, Mankar



Mankar, 11/8/22

Signed by *Principal*
College Principal with Seal *Mankar College*

Prof
2/8/22

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