RISHI BANKIM CHANDRA COLLEGE
RBC COLLEGE ROAD EAST, NAIHATI, WEST BENGAL - 743165

GREEN AUDIT REPORT 2022 - 23

Audited By :
Dr. Indranil Ghosh

ISO 14001:2015

Certificate of Registration

This is to Certify That
Environmental Management System of

RISHI BANKIM CHANDRA COLLEGE

EAST KANTHAL PARA, NAIHATI - 743165, WEST BENGAL, INDIA.

has been assessed and found to conform to the requirements of

ISO 14001:2015

for the following scope :

PROVIDING EDUCATIONAL DERVICES.

Certificate No	: **24MEEPQ78**		
Initial Registration Date	: 28/02/2024	Issuance Date	: 28/02/2024
Date of Expiry	: 27/02/2027		
1st Surve. Due	: 28/01/2025	2nd Surve. Due	: 28/01/2026

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Ref: GA/RBC/2022-23/02

CERTIFICATE

This is to certify that Rishi Bankim Chandra College, Naihati, West Bengal has conducted detailed Environmental Green Audit for 2022-23 Academic year for their campus and submitted necessary data and credentials for scrutiny. The activity and measure carried out by the college and was found satisfactory. The efforts taken by the students, faculty members and the college authority towards Environment and Sustainability is Highly Appreciated and commendable.

Dr Indranil Ghosh

Environmental Auditor

Executive Summary

In accordance with the Environmental policy of Rishi Bankim Chandra College for 2022-23, the green audit of the college was conducted in September, 2023.

The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the standard Green Policy adopted by different academic institution and the college itself. 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 as the degree to which the College is in compliance with the applicable regulations, policies and standards.

During the initial planning of the audit, an analysis was conducted in order to identify, predict, evaluate and prioritize the parameters associated with the environmental sustainability. 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 System (EMS) in the campus. The criteria and methods used in the audit were based on the identified impacts. The methodology used included physical inspection of the campus, review of the relevant documentation and interviews.

Acknowledgement

We would like to thank Prof Dr. Aridam Mallick, Teacher In Charge of Rishi Bankim Chandra College for his consent to conduct this audit. We would like to sincerely thank all the Departments, students, teaching and non-teaching staff for their kind cooperation with us during this survey.
We would also like to express our special thanks to Prof Dr. Saurav Mazumder, Coordinator, IQAC for his dedicated and sincere effort to make the report complete.

Assurance

This audit has been conducted in accordance with the *International Standards for the Professional Practice of Auditing*.

In our professional judgment, sufficient 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.

1.0 Introduction

Green Audit can be defined as a systematic, documented, periodic and objective review by regulated entities of facility operations and practices related to meeting the environmental requirements. The "Green Audit" aims to analyze environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. It was initiated with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment as whole. Through Green Audit, one gets a direction as to how to improve the condition of environment. There are various factors that have determined the growth of carrying out Green Audit.

There is a relationship between Green Audit and Sustainable Development of any organization.The primary need for achieving the sustainable development of any organization is to determine the Green Audit policy, Green Audit Framework, Accurate implementation, and result analysis of it. Strong Green Audit process can help to achieve the sustainability. Green Audit framework helps to achieve the goal set by an organization. Green Audit is linked to Sustainable development process. Green Audit and sustainable development process help to reduce the wastage and associated cost as well as increases the product quality.

Green audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India which declares the institutions as Grade A, B or C according to the scores assigned during the accreditation.

1.1About the College

Rishi Bankim Chandra College is a multi-faculty (Arts, Science and Commerce faculties) co-education College, offering Honours & General and PG Courses affiliated to the West Bengal State University.

In June 1948, the college was shifted to its present premises. It comprises integrated college buildings on two adjacent plots on 1.3 acre and a large playground with gallery-shed on fully walled and high-fenced 3.5-acre of land. The college is located near Rishi Bankim Chandra's ancestral home at East Kantalpara, forty three kilometers north of Kolkata, on the eastern bank

of River Hooghly, and is well connected by roads, Kalyani Expressway and the Railways. The nearest Railhead is Naihati under Sealdah North Division of Eastern Railways. A four-storied building, State-of-art Diamond Jubilee Block was inaugurated on 15th January 2011. It presently houses 2 post-graduate (P.G.) and 5 under graduate (U.G.) departments of the college. A three-storied Students' Amenities Block houses the Students' Canteen on Ground floor and Union rooms on 1st Floor was inaugurated in 2006, the 2nd floor was completed in 2019 with a Seminar Hall. A two-storied building was also added for infrastructural expansion in 2019.

The campus is located 43 km away from Kolkata. The nearest Railway Station Sealdah is 37 km and Netaji Subhas Intenational airport, Kolkata is 32 KM away from here respectively. Naihati is located at 22.9°N 88.42°E. It has an average elevation of 15 metres.

Naihati is bounded by Garifa, Halisahar and Balibhara on the north, Ramghat, Saheb Colony, Indira Nagar, Rajendrapur, Mamudpur and Dogachhia on the east, Bhatpara and Madral on the south, and the Hooghly on the west. Although not specifically spelled out, it is evident that localities such as Garifa, Kultala, Bibeksarani, Bijaynagar, Nimbagan and Fingapara are neighbourhoods in Naihati, though some consider them to a part of Naihati.

The main road is around 5-10 meter away from the college buildings. The Hukum Chand Jute Mill is located in the 5 km radius of the college campus.

The college has only one shift and starts from 10:30 am and closes at 4:30 pm. Total 4000 (approx) students are studying in different under graduate programs viz BSc, B Com and BA (Hons) and (Gen) and also in two PG programs viz. in English and Zoology.

The college is desirous to adopt the "Green Campus" system for environmental conservation andsustainability. There are three main pillars i.e.

- Zero environmental foot print
- Positive impact on occupational health performance
- 100% graduates demonstrating environmental literacy.

The goal is to reduce CO_2 emission, energy and water use, while creating an atmosphere where students can learn and be healthy. The college administration works on the several factors of "Green Campus" including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity.

1.2Objectives of the Study

The main objective of the green audit is to promote the Environment Management and conservation in the College Campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

1. Verifying compliance: Verifying compliance with standards or best available techniques.
2. Identifying problems: Detecting any leakage, spills or other such problems with the operations and processes.
3. Formulating environmental policy: Formulating the organization's environmental policy if there is no existing policy.
4. Measuring environmental impact: Measuring the environmental impact of each and every process and operation on the air, water, soil, worker health and safety and society at large.
5. Measuring performance: Measuring the environmental performance of an organization against bestpractices.
6. Confirming environmental management system effectiveness: Giving an indication of the effectiveness of the system and suggestions for improvement.
7. Providing a database: Providing a database for corrective action and future plans.
8. Developing the organization's environmental strategy: Enabling management to develop itsenvironmental strategy for moving towards a greener corporate and performance culture.
9. Communication: Communicating its environmental performance to its stakeholder's through reporting which will enhance the image of the organization.

1.3General steps of Audit

1. Systematic and comprehensive data collection
2. Documentation with physical evidences
3. Independent periodic evaluation with regulatory requirements and appropriate standards
4. Systematic and comprehensive improvement and management of existing system.

1.4 The audit process

1.4.1 Pre-audit activities

The pre-audit activities include the following:

1. The sites / area /division that are to be audited need to be determined and selected.
2. The Audit Team was informed on the date of the audit which enabled them to adjust and become used to the concept.
3. The audit scopes were identified. Audit Team was consulted when establishing the scope.
4. The audit plan was designed in such a way that it accommodated changes based on information gathered during the audit and effective use of resources.
5. Audit team and assignment of responsibility were established.
6. The required working papers were collected. This facilitated the investigations of audit team on the sites.
7. The background information on the facility including the facility organization, layout and processes, and the relevant regulations and standards, were collected.
8. The background information on the site's historical uses, and the location of soil and ground water contamination were collected.
9. The pre-audit questionnaire was informed to auditee.

1.4.2 Onsite audit activities

The onsite audit includes:

1. The opening meeting is the first step between the audit team and college authority. Inthis meeting the purpose of audit, the procedure and the time schedule were discussed.
2. Site inspection is the second step for onsite activity. In this step the audit team discovered matters which are important to the audit but which were not identified at the planning stage.
3. Onsite phase of the audit developed a working understanding of how the facility manages the activities that influence the environment and how any EMS, if there is one, works.
4. Assessed strengths and weaknesses, controls and risks associated with their failure were established.
5. Gathering audit evidence ie, collecting data and information using audit protocol.
6. Communicated with the Audit Team to obtain most information.
7. Evaluated the audit evidence against the objectives established for the audit.
8. An exit meeting to explain the audit findings.

1.5 Methodology

In order to perform green audit, the methodology included different tools such as preparation of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. The study covered the following areas to summarize the present status of environment management in the campus:

- Water management
- Energy Conservation
- Waste management
- E-waste management
- Green area management
- Green Practices

View of Naihati

View of Rishi Bankim Chandra College, Naihati

2.0 Water Audit

Evaluating the facility of raw water intake and determining the facilities for water treatment. Water harvesting is the best technique that can be adopted by simply storing water and using it at the time of scarcity.

2.1 Water Use

This indicator addresses water consumption, water sources, irrigation, storm water, appliances and fixtures. A water audit is an on-site survey and assessment to determine the water use and hence improving the efficiency of its use.

2.1.1 Observations

The study observed that natural spring is major source of supply of water. Water is used for drinking purpose, toilets, laboratory and gardening. During the survey, no loss of water is observed, neither by any leakages nor by over flow of water from overhead tanks. However, during Monsoon season very less amount of overflow takes place through drains. The data collected from all the departments is examined and verified. On an average the total use of water in the college is 4000 L/day which include domestic purposes, gardening and for different laboratories.

The work on rain water harvesting is under process. There is rain water storage unit in the Diamond Jubilee block, at the eastern side of the main campus, which was constructed XI plan grant. It was inaugurated in September 2016.

2.1.2 Recommendations

- Need of monitoring, controlling overflow is essential and periodically supervision drills should be arranged. In campus small scale/medium scale/large scale reuse and recycle of water system is necessary.
- Minimize wastage of water and use of electricity during water filtration process, if used.

- Ensure that all cleaning products used by college 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.

2.2 Audit Framework and detailed findings: Water management

Control objective	Control(s)	Audit Observation
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 done to control water wastage.
	Install appliances which reduce water consumption	Practiced as much as possible.
	Encourage a decrease in water usage among staff, students and conference guests	College does encourage a decrease in water usage among staff, students and conference guests. The water consumption is minimal.
	Purchase the most efficient washing machines and dishwashers available which have an economy setting as default	These are not required by the college.
	Use an efficient and hygienic water storage mechanism to minimize the loss of water during storage	The college cleans the reservoirs in regular intervals (twice a year) **.**
	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	The college has RO to filtrate the water.
	Install Water recycling mechanism, such as rain water harvesting system	The college has Rain water Storage system.

3.0 Energy Audit

It deals with the energy conservation and methods to reduce the consumption and the related pollution.

3.1 Energy Conservation

This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliance, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment.

3.1.1 Observations

Total energy consumption is determined as 20520 KWH/Year by major energy consuming equipment. All the departments and common facility centers are equipped with LED lamps. Approximately 79 LED bulbs are counted during survey. The college has 32 Air conditioning machine. Equipment like Computers (161 nos with TFT monitors and 06 laptops) and printers (32) are used with power saving mode. The college conducts the switch off drills at regular intervals. In the laboratories the switch is shut down after occupancy time and is one of the green practices for energy conservation.

3.1.2 Recommendations

- 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.
- Appreciate that it is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity.
- Installation of more LED lamps instead of CFL.

3.2 Audit Framework and detailed findings: Energy management

Control objective	Control(s)	Audit Observation
	Support renewable and carbon-neutral electricity Optionson any energy-purchasing consortium, with the aim of supplying all college properties with electricity that can be attributed to renewable and carbon-neutral sources.	No, the college does not have any choice of 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.
Reduce energy consumption, especially of energy derived from fossil fuels	Appreciate that it is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity	The College have no choice other than *WEST BENGALSTATE ELECTRICITY DISTRIBUTION COMPANY LIMITED*. The company is a PSU of Govt of West Bengal. The company which invests Roof top Solar PV systems.
	Look in to the possibility of on-site micro-generation of renewable electricity.	The College has no Solar panel for the supply of renewable energy.
	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 as much as practicable.
	Provide energy efficient heating systems, with adjustable controls for individual heating appliances wherever possible, and ensure that comprehensible instructions are available to staff and students on the use of heating controls.	No Room Heaters are used in winter season.

	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. Visible reminders are placed above every switch to turn off lights when not in use.
	Monitor and understand the importance of different sources of college energy consumption, and set appropriate and measurable targets for a reduction in certain areas of consumption and/or in the overall consumption of energy.	Disconnect the supply of electricity when notrequired.(Specially during the month long winter vacation).
	Conduct switch off drills at regular intervals	College conducts switch off drills at regular intervals.
	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	All electronic and electricalequipment are switched offwhen not in use. Equipment are configured in power saving mode when such option is available.
	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	Equipment running on standby mode.

4.0 Waste Management Audit

This indicator addresses waste production and disposal of different wastes like paper, food, plastic, biodegradable, construction, glass, dust etc. and recycling. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair, and reuse. Solid waste generation and management is a burning issue. Unscientific handling of solid waste can create threat to everyone. The survey focused on volume, type and current management practice of solid waste generated in the campus. The different solid wastes collected are as mentioned above.

4.1 Waste Conservation

Good waste management does more than just clean up the environment – it can also provide diverse benefits for communities that engage in waste management activities.
The broader challenge towards the waste management is to develop local/institutional waste management strategies and to embed local processes to ensure sustainability.

4.1.1 Observations

The total solid waste collected in the campus is 26 Kg/day. Waste generation from tree droppings and lawn management is a major solid waste generated in the campus. The waste is segregated at source by providing separate recycle bins for Bio-degradable (Green colored bins) and Plastic waste (Blue colored bins). Single sided used papers reused for writing and printing in offices and all departments. Unimportant and non-confidential reports/ papers are sent for pulping and recycling after completion of their preservation period. Very less plastic waste (0.1Kg/day) is generated by some departments, office; garden etc Metal waste waste is stored and given to authorized scrap agents for further processing. Few glass bottles are reused. The college has practice of paperless office work in administration as much as possible and as a result there is less carbon emission from printers, no carbon copy of bills, filing of cartridge outside the office (if necessary) is observed.

The use of single-use plastic carry bags (having thickness less than 5 micron), plastic flags, cups, plates etcare completely banned inside the college campus since the college reopened after pandemic. The notice of banning such items inside the campus was issued on 11.11.2021.

Solid waste from canteen like food wastes are stored in bins and later deposited in pits; these wastes and vegetable wastes are collected into pits for making compost. This compost is utilized in college gardens; liquid wastes are disposed carefully through well drainage system.

4.1.2 Recommendations

- Reduce the absolute amount of waste that is produced from college staff offices.
- Make full use of all recycling facilities provided by the local authority and private suppliers, including glass, cans, plastic bottles, batteries, print cartridges, cardboard and furniture.
- Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated.
- Single sided papers to be used for writing and photocopy.

4.2 Audit Framework and detailed findings: Waste Management

Control objective	**Control(s)**	**Audit Observation**
Maximizethe proportionof waste that isrecycled & minimize the quantity of non-recyclable refuse	Reduce the absolute amount of waste that is produced from college staff offices.	The college has to a certain level controlled the amount of waste that it produces from staff offices.
	Make full use of all recycling facilitiesprovided by Municipality and private suppliers, including glass, cans, plastic bottles, batteries, printcartridge, cardboard and furniture.	Yes. College uses the facilities provided by the local authority to recycle the wastes.
	Compost, or cause to be composted, allorganic waste, green waste and un-recycled cardboard produced in or collected from kitchens, gardens, offices and rooms.	College has waste composting facility.
	Recycle or safely dispose of white goods, computers and electrical appliances.	Safe disposal through authorized agents for computers and electrical wastes.
	Use reusable resources and containers and avoid unnecessary packaging where possible	College tries to use reusable resources and avoid unnecessary packaging where possible
	Always purchase recycled resourceswhere these are both suitable and available.	College tries to purchase recycled resources where these are bothsuitable and available.

	Provide sufficient, accessible and well- publicized collection points for recyclable waste, with responsibility for recycling clearly allocated	Yes. College has sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated
	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	Yes! College arranged the events withleast production of waste.
	Promote reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives	Yes!, the college has promoted reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives
	Promote reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives	Yes, the college dispose all waste, whether solid or otherwise, in a scientific manner and ensure that it is not released directly to the environment.
	Adoption of paperless office to reduce waste.	Yes! College has implemented paper less office partially.

5.0 E-waste Management Audit

E-waste can be described as electronic equipment that is near or at the end of its useful life. E-waste makes up about 5% of all municipal solid waste worldwide but is much more hazardous than other waste because electronic components contain cadmium, lead, mercury, and Polychlorinated biphenyls (PCBs) that can damage human health and the environment.

5.1 E-waste Management System

Electronic waste or e-waste is generated when electronic and electrical equipment become unfit for their originally intended use or have crossed the expiry date. Computers, servers, mainframes, monitors, compact discs (CDs), printers, scanners, copiers, calculators, fax machines, battery cells, cellular phones, transceivers, TVs, iPods, medical apparatus, washing machines, refrigerators, and air conditioners are examples of e-waste (when unfit for use).

E-waste typically consists of metals, plastics, cathode ray tubes (CRTs), printed circuit boards, cables, and so on. Valuable metals such as copper, silver, gold, and platinum could be recovered from e-wastes, if they are scientifically processed. The presence of toxic substances such as liquid crystal, lithium, mercury, nickel, polychlorinated biphenyls (PCBs), selenium, arsenic, barium, brominated flame retardants, cadmium, chrome, cobalt, copper, and lead, makes it very hazardous, if e-waste is dismantled and processed in a crude manner with rudimentary techniques. E-waste poses a huge risk to humans, animals, and the environment. The presence of heavy metals and highly toxic substances such as mercury, lead, beryllium, and cadmium pose a significant threat to the environment even in minute quantities.

Consumers are the key to better management of e-waste. Initiatives such as Extended Producer Responsibility (EPR); Design for Environment (DfE); Reduce, Reuse, Recycle (3Rs), technology platform for linking the market facilitating a circular economy aim to encourage consumers to correctly dispose their e-waste, with increased reuse and recycling rates, and adopt sustainable consumer habits.

5.1.1 Observation

E-waste generated in the college is very less. It is handled, treated and disposed in scientific way. There are 161 computers (with TFT monitors), 32 printers and 02 photo copier are available in the college. The college generates some e-waste like chips, bulbs, circuit boards, mother boards, computers, batteries, relays, and switches. The non-working computers, spare parts and other non-working electrical equipment are stored in separate places. The college has intention to adopt the Buyback policy. E-waste handled is 50 kg (approx) per year and disposed off through authorized vendors.

5.1.2 Recommendations

- Recycle or safely dispose of white goods, computers and electrical appliances.
- Use reusable resources and containers and avoid unnecessary packaging where possible. Always purchase recycled resources where these are both suitable and available.

5.2 Audit Framework and detailed findings: E Waste Management

Control objective	Control(s)	Audit Observation
Reduce the E waste generation	Adoption of Extended Producer Responsibility (EPR), Design for Environment (DfE); Reduce, Reuse, Recycle (3Rs). The EPR is an environment protection strategy that makes the producer responsible for the entire life cycle of the product, especially for take back, recycle and final disposal of the product.	College has no specific policy for E waste management. Time to time E waste are sold out to selected vendors who cn possible reuse some components and effectively dispose the rest.

6.0 Green area Management Audit

This includes the plants, greenery and sustainability of the campus to ensure that the buildings conform to green standards. This also helps in ensuring that the Environmental Policy is enacted, enforced and reviewed using various environmental awareness programs.

6.1 Green Area

Green spaces are important reservoirs of biodiversity, providing resources, ecosystem services and habitats for species of interest, improving functional and structural connectivity at the urban level.

6.1.1 Observations

There are 3140 sqft land which is available as green area. Campus is located in the vicinity of different types of species of plants. The campus is enriched by different bio diversities like bryophytes, pteridophytes, arthropod, mollusca and reptiles. Various tree plantation programs are being organized at college campus. This program helps in encouraging eco-friendly environment which provides pure oxygen within the institute and awareness among local people. The plantation program includes various types of indigenous species of ornamental and medicinal wild plant species. There is garden which is maintained by the gardener. The NSS unit of the college and the members of Nature club of the college also look after the college greenery. The college has taxonomically identified all the plants available in the campus.

There is a college beatification subcommittee as well to look after and plan for greening of the campus.

6.1.2 Recommendations

- Promote environmental awareness as a part of course work in various curricular areas, independent research projects, and community service.
- Create awareness of environmental sustainability and take action to ensure environmental sustainability.
- Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings.

6.2 Audit Framework and detailed findings: Green Area Management

Control objective	Control(s)	Audit Observation
Development of green area tocompensate CO_2.	Proper Land use pattern to develop green area.	No. There is no proper land use policy of the college.
	Proper Taxonomical identification of plants in the campus.	The plants inside the campusis identified and marked properly.
	Conduct Environmen tAwareness program.	Environment Awareness program i s regularly organizedby the college authority.

6.3 Taxonomical identification of plants in the campus

	Scientific name	Family	Local name	Number of plants
1	*Aloe barbadensis*	Liliaceae	Grithakumari	2
2	*Andrographis paniculata*	Acanthaceae	Kalmegh	2
3	*Asparagus officinalis*	Asparagaceae	Satamuli	1
4	*Azadirachta indica*	Meliaceae	Neem	1
5	*Bacopa monnieria*	Scrophulariaceae	Brahmi	1
6	*Boerrahavia repens*	Nyctaginaceae	Punarnaba	1
7	*Calotropis gigantea*	Asclepiadaceae	Akanda	1
8	*Catharanthus roseus*	Apocynaceae	Nayantara	2
9	*Centella asiatica*	Apiaceae	Thankuni	1
10	*Cissus quadrangularis*	Euphorbiaceae	Harjora	1
11	*Clitoria ternatea*	Fabaceae	Aparajita	1
12	*Crotalaria pallida*	Fabaceae	Atosi	1
13	*Cycas circinalis*	Cycaceae	Cycas Male	1
14	*Cycas circinalis*	Cycaceae	Cycas Female	1
15	*Cymbopogon sp.*	Poaceae	Citronella	1
16	*Datura metel*	Solanaceae	Dhutra	1
17	*Digitalis purpurea*	Plantaginaceae	Purple foxglove	1
18	*Dracaena sp.*	Asparagaceae	Dracaena	1
19	*Eclipta prostrata*	Asteraceae	Kesuth	1
20	*Glycyrrhiza glabra*	Fabaceae	Jastimadhu	2
21	*Gymnema sylvestre*	Asclepiadaceae	Gurmar	1
22	*Helianthus annus*	Asteraceae	Surjomukhi	1
23	*Heliotropium indicum*	Boraginaceae	Hatisur	1
24	*Hemidesmus indicus*	Asclepiadaceae	Ananatamul	1
25	*Holarrhena pubescens*	Apocynaceae	Kurchi	1
26	*Hydrilla verticillata*	Hydrocharitaceae	Hydrilla	2
27	*Ixora coccinea*	Rubiaceae	Rangan	1
28	*Jatropha gossypifolia*	Euphorbiaceae	Bherenda	1
29	*Justicia adhatoda*	Acanthaceae	Basak	1
30	*Leonurus sibiricus*	Lamiaceae	Raktadron	1

31	*Mentha spicata*	Lamiaceae	Pudina	1
32	*Mimosa pudica*	Fabaceae	Lajabati	1
33	*Nerium indicum*	Apocynaceae	Korobi	1
34	*Nymphaea rubra*	Nymphaeaceae	Lal Shaluk	2
35	*Ocimum basilicum*	Lamiaceae	Babui Tulsi	2
36	*Ocimum gratissimu*m	Lamiaceae	Ram Tulsi	2
37	*Paederia scandens*	Rubiaceae	Gandal	2
38	*Papaver somniferum*	Papaveraceae	Posto	2
39	*Piper nigrum*	Piperaceae	Golmorich/Black Pepper	2
40	*Plantago ovata*	Plantaginaceae	Isabgol	2
41	*Plumbago zeylanica*	Plumbaginaceae	Lalchita	2
42	*Psoralea corylifolia*	Fabaceae	Babchi	2
43	*Rauvolfia serpentina*	Apocynaceae	Sarpagandha	2
44	*Ravenala madagascariensis*	Musaceae	Panthapadap/ Traveller's Palm	1
45	*Rhoeo discolor*	Commelinaceae	Rhoeo	2
46	*Rivina humilis*	Petiveriaceae	Lal Jhanti	1
47	*Selaginella* sp.	Sellaginaceae	Selaginella	1
48	*Setcreasea Purpurea*	Commelinaceae	Setcreasea	1
49	*Solanum torvum*	Solanaceae	Bon-Begun	1
50	*Stevia rebaudiana*	Astearceae	Mistipata	2
51	*Tinospora cordifolia*	Menispermaceae	Guloncha	1
52	*Tylophora indica*	Asclepiadaceae	Antamul	1
53	*Uraria picta*	Fabaceae	Sankarjata	2
54	*Vitex negundo*	Verbenaceae	Nishinda	1
55	*Withania somnifera*	Solanaceae	Ashwagandha	2
56	*Zamia furfuracea*	Zamiaceae	Zamia	1
57	*Zea mays*	Poaceae	Bhutta	2
58	Bombax ceiba	Malvaceae	Simul	1
59	Delonix regia	Fabaceae	Gulmohur	1
60	Mimusops elengi	Sapotaceae	Bokul	1
61	Polyalthia logifolia	Annonaceae	Debdaru	6

Dracaena sp

তুলসী (ocimum lamiaceae family)

তুলসী (ocimum lamiaceae family)

রক্তকরবী (Nerium indicum family apocynaceae)

রঙ্গন (ixora coccinea)

রক্তদ্রোণ (leonurus sibiricus family lamiaceae)

শিমূল

নিম (azadirachta indica)

বকুল ()

বনতামাক (necotiania plambajinefolia)

শতমূলী (asparagus sp)

debdaru

7.0 Green Practices

"Going **green**" means to pursue knowledge and **practices** that can lead to more environmentally friendly and ecologically responsible decisions and lifestyles, which can help protect the environment and sustain its natural resources for current and future generations. Green Practice includes

1. **Green purchasing**
2. **Green transportation**
3. **Campaign for Go Green**
4. **Green Policy**

7.1 Green Practice Audit

Control objective	Control(s)	Audit Observation
Ensure that improvements, purchases and developments are environmentally sound	Seek and act upon professional advice in order to minimize the adverse environmental impact of any new developments and exceed government regulatory requirements. This includes efficient heating and water systems, appropriate space for recycling, and the use of recycled and/or sustainable building materials where possible.	The college has contacted and acts upon professional advice in order to minimize the adverse environmental impact of any new developments and Government regulatory requirements.
	Purchase efficient and environmentally sound appliances	College is positive about increasing greenery by planting in front of the college and maintaining potted plants scientifically as much as possible.
	Purchase food that has been produced and delivered with minimal impact on the environment, this includes buying locally produced, organic and free range food wherever possible.	No, college does not purchase food stuff as the canteen facility is available from 10 am to 5 pm on all working days.
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 with good surface transport. Faculty members, Office staff and students are attending the college by public transport or by own

		transport like motor cycle etc. A well maintained parking place is available for the two wheelers and four wheelers.
	Reduce the proportion of travel on College business carried out in private transport and eliminate unnecessary and inefficient use of college vehicles	No, college has no vehicle. College uses hired vehicle whenever it is required. Most of the time use Public transport for official works.
	Promote car sharing / car pool among the students and faculty members	Both students and faculty members use either public transport and very less own vehicle.
Minimize the use of chemical pollutants	Ensure that all cleaning products used by college 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 washing liquids are used in the college and all the toilet cleaners are Eco friendly.
	Reduce the practice of burning Plastic and other material that emits harmful gas on burning is prevented in the campus.	The college is plastic free zone. Single use plastic was banned in the campus ever since November, 2021.
	Establish a Garden in the campus.	The college has already maintained garden of 1200 sft (approx) and 57 types of plants are there.
	Minimize the use of fertilizers and pesticides in college grounds, opting for the use of compost produced on site wherever possible.	Negligible amount of fertilizers and pesticides are used in the college.
	Encourage the faculties and students to plant trees in the garden.	Faculty members and students know the importance of the tree plantation.
	Reviews periodically the list of trees planted in the garden.	Such review is conducted on frequent basis.
	Conduct environmental awareness workshops as a part	The College regularly organizes camps, seminar, and

	of the program.	workshops.
Ensure that environmental awareness is created	Conduct events such as plant trees to spread environmental awareness among the students	The different groups of College students usually do that.
	Create awareness of environmental sustainability and takes actions to ensure environmental sustainability.	Seminars and awareness programmes are conducted on Nature and natural resources, wildlife for the Conservation of Biodiversity.
	Reduce the rate of contributes to the depletion and degradation of natural resources	College does not directly or indirectly involve 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	As per UGC guidelines the subject Environmental Studies is introduced in the curriculum of all the streams. Under this curriculum, students have to appear the examination at the end of 1st semester for two academic credit points.
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.	The college buildings are more than 50 years old and follow the standards of architecture. The college is a septuagenarian institution, having the main building built back in 1948.
Ensure that the Environmental Policy is enacted, enforced and reviewed	Establish a College 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.	The college has Nature and Nurture Club which looks after the Environment Protection and Campus Beautification. The club also regularly monitors and advocates for environment protection measures and development of green area.

	Ensure that on the Nature Club there will be appropriate representatives of the relevant college departments and authorities – such as catering, gardening, maintenance, cleaning and finance	The college has its Nature Club comprising the staff and students of different departments.
	Ensure that on the Environmental Committee there will be the Green Officer from an external agency who is engaged in the profession of providing guidance on environmental impact	The college has no such Green Officer.
	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 Protection Committee reviews the policy periodically.
	Ensure that the Environmental Policy is enforced regardless of whether its requirements exceed the mandate of the law	Environmental policy of the college: "No to water & Electricity misuse; Optimal waste management".
	Require that every staff and student member recognizes their responsibility to ensure that the commitments in the Environmental Policy are properly put into practice	Every staff and student member recognizes their responsibility to ensure their commitments to the Environment.
	Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings	Green audit is conducted annually.

7.1.2 Recommendations

- The Environmental Protection Committee should be empowered to look after allthe green practices in the college
- More Seminar/ workshop should be organized to create the awareness ofEnvironmental conservation among the students and other stake holders**.**

Green Campus of Rishi Bankim Chandra College

Green Activities of the campus

8.0 Conclusion

Considering the fact that the institution is predominantly an under-graduate college, there is significant concern over the environmental conservation both by faculty and students. The environmental awareness initiatives are substantial. The efforts towards paperless work system are noteworthy. Besides, environmental awareness programmes initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of waste management using Eco-friendly and scientific techniques. This may lead to a prosperous future in the context of Green Campus and thus sustainable environment and community development.

As part of green audit of the campus, we also carried out the environmental monitoring of campus which includes illumination, Noise level, and Ventilation and Indoor Air quality of the class room. It was observed that illumination and Ventilation is adequate considering natural light and air velocity present. Noise level in the campus is below 50 dB at day time which is well within the limit.

Appendix 1: Ambient Air Quality of Naihati

Device Location **Naihati Municipality**

Relative Humidity **N/A %** Temperature **24.41 °C**

Latitude **22.8888310** Longitude **88.4169647** Date and Hour **2024-02-26, 19 hours**

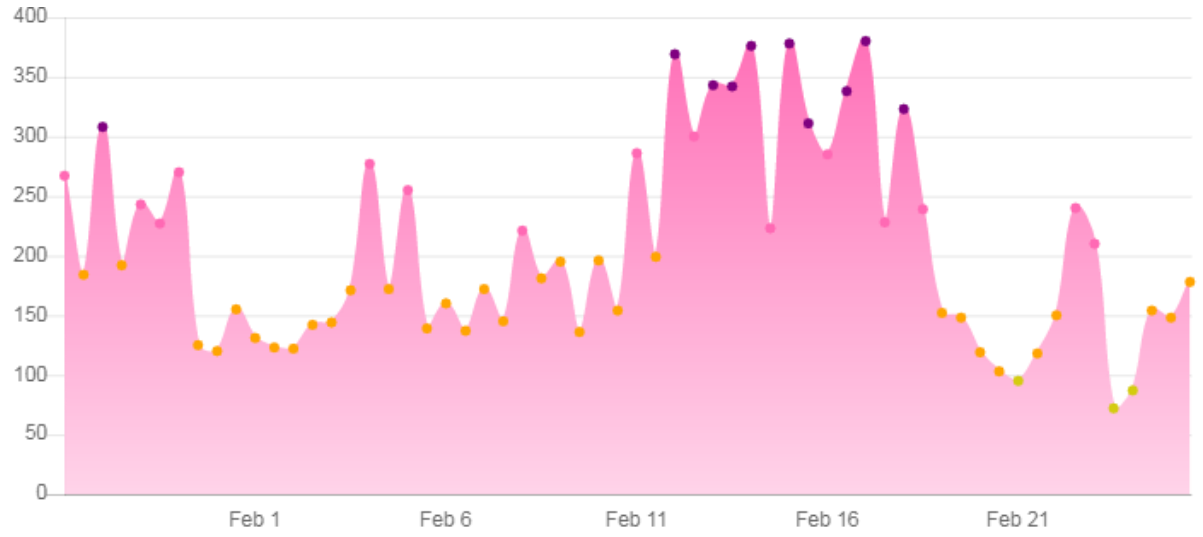
Pollutant	Average	Minimum	Maximum
PM 2.5	65.32 µg/m^3	65.32 µg/m^3	65.32 µg/m^3
PM 10	117.42 µg/m^3	117.42 µg/m^3	117.42 µg/m^3
Temperature	24.60 °C	24.60 °C	24.60 °C
Humidity	60.50 %	60.50 %	60.50 %
Wind Direction (°)	N 1°19' E	-	-
Wind Speed (m/s)	0.60	0.60	0.60

Disclaimer: West Bengal pollution Control Board has developed a sensor based air pollution Monitoring network. The sensors are periodically calibrated against the reference-grade monitors and are being used for air quality management for the state. The data represent broad trends of air pollution in the locality.These data are being used for the purpose of research only and not to meant for regulatory intent.

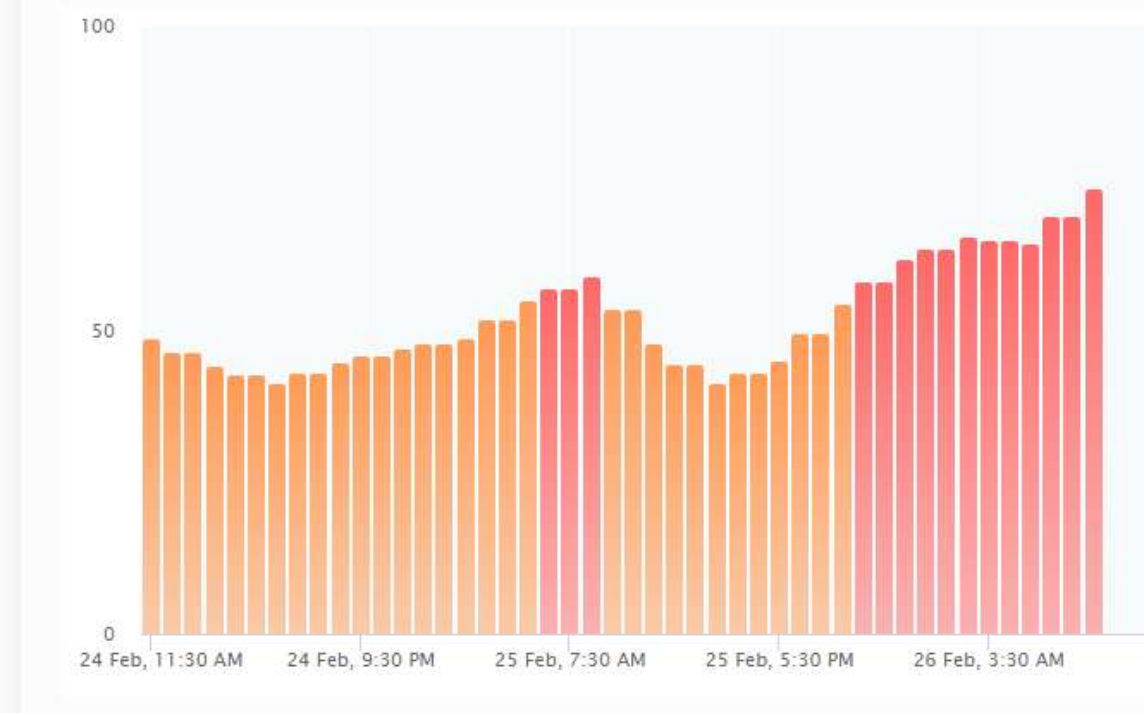
24-Hourly NAAQS	
PM 2.5 (ug/m3)	PM 10 (ug/m3)
60	100

- Source : WBPCB

Air Quality Graph of Naihati (last one month)



Graph of PM2.5 of Naihati of last three days



Appendix 2: Noise Quality of Naihati

Parameter	Value
LAs	59.51
LCs	64.70
LZs	65.75
LAeqt	68.17
LCeqt	72.74
LZeqt	72.74
LApeakt	94.84
LCpeakt	95.45
LZpeakt	95.62

Noise Limit	DAY (6 AM - 10 PM) in dB(A)	NIGHT (10 PM - 6 AM) in dB(A)
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence	50	40

*Source: WBPCB

Appendix 3: Water Quality Parameter

Parameter	Bureau of Indian Standards (BIS 2009) acceptable limit	WHO standard 2011 desirable limit
pH	6.5 - 8.5	7.0 - 8.5
TDS	500	600
Alkalinity	200	300
DO	5	NA
EC	750	750
Salinity	100 PPT	100 PPT
Turbidity	1 NTU	1 NTU
Na^{+}	200	50
Mg^{2+}	30	30
Ca^{2+}	75	100
F^{-}	1	1.5
Cl^{-}	250	250
NO_3^{2-}	50	50
SO_4^{2-}	200	250

NA - Not Available

GREEN AUDIT REPORT, 2021-22

RISHI BANKIM CHANDRA COLLEGE

Audited By: Dr Indranil Ghosh

Ref: GA/RBC/2021-22/02

CERTIFICATE

This is to certify that Rishi Bankim Chandra College, Naihati, West Bengal has conducted detailed Environmental Green Audit for 2021-22 Academic year for their campus and submitted necessary data and credentials for scrutiny. The activity and measure carried out by the college and was found satisfactory. The efforts taken by the students, faculty members and the college authority towards Environment and Sustainability is Highly Appreciated and commendable.

22/12/2022

Dr Indranil Ghosh

Environmental Auditor

Executive Summary

In accordance with the Environmental policy of Rishi Bankim Chandra College for 2021-22, the green audit of the college was conducted in December, 2022.

The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the standard Green Policy adopted by different academic institution and the college itself. 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 as the degree to which the College is in compliance with the applicable regulations, policies and standards.

During the initial planning of the audit, an analysis was conducted in order to identify, predict, evaluate and prioritize the parameters associated with the environmental sustainability. 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 System (EMS) in the campus. The criteria and methods used in the audit were based on the identified impacts. The methodology used included physical inspection of the campus, review of the relevant documentation and interviews.

Acknowledgement

We would like to thank Prof Dr. Aridam Mallick, Teacher In Charge of Rishi Bankim Chandra College for his consent to conduct this audit. We would like to sincerely thank all the Departments, students, teaching and non-teaching staff for their kind cooperation with us during this survey.
We would also like to express our special thanks to Prof Dr. Saurav Mazumder, Coordinator, IQAC for his dedicated and sincere effort to make the report complete.

Assurance

This audit has been conducted in accordance with the *International Standards for the Professional Practice of Auditing*.

In our professional judgment, sufficient 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.

Introduction

Green Audit can be defined as a systematic, documented, periodic and objective review by regulated entities of facility operations and practices related to meeting the environmental requirements. The "Green Audit" aims to analyze environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. It was initiated with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment as whole. Through Green Audit, one gets a direction as to how to improve the condition of environment. There are various factors that have determined the growth of carrying out Green Audit.

There is a relationship between Green Audit and Sustainable Development of any organization.The primary need for achieving the sustainable development of any organization is to determine the Green Audit policy, Green Audit Framework, Accurate implementation, and result analysis of it. Strong Green Audit process can help to achieve the sustainability. Green Audit framework helps to achieve the goal set by an organization. Green Audit is linked to Sustainable development process. Green Audit and sustainable development process help to reduce the wastage and associated cost as well as increases the product quality.

Green audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India which declares the institutions as Grade A, B or C according to the scores assigned during the accreditation.

About the College

Rishi Bankim Chandra College is a multi-faculty (Arts, Science and Commerce faculties) co-education College, offering Honours & General and PG Courses affiliated to the West Bengal State University.

In June 1948, the college was shifted to its present premises. It comprises integrated college buildings on two adjacent plots on 1.3 acre and a large playground with gallery-shed on fully walled and high-fenced 3.5-acre of land. The college is located near Rishi Bankim Chandra's ancestral home at East Kantalpara, forty three kilometers north of Kolkata, on the eastern bank of River Hooghly, and is well connected by roads, Kalyani Expressway and the Railways. The

nearest Railhead is Naihati under Sealdah North Division of Eastern Railways. A four-storied building, State-of-art Diamond Jubilee Block was inaugurated on 15th January 2011. It presently houses 2 post-graduate (P.G.) and 5 under graduate (U.G.) departments of the college. A three-storied Students' Amenities Block houses the Students' Canteen on Ground floor and Union rooms on 1st Floor was inaugurated in 2006, the 2nd floor was completed in 2019 with a Seminar Hall. A two-storied building was also added for infrastructural expansion in 2019.

The campus is located 43 km away from Kolkata. The nearest Railway Station Sealdah is 37 km and Netaji Subhas Intenational airport, Kolkata is 32 KM away from here respectively. Naihati is located at 22.9°N 88.42°E. It has an average elevation of 15 metres.

Naihati is bounded by Garifa, Halisahar and Balibhara on the north, Ramghat, Saheb Colony, Indira Nagar, Rajendrapur, Mamudpur and Dogachhia on the east, Bhatpara and Madral on the south, and the Hooghly on the west. Although not specifically spelled out, it is evident that localities such as Garifa, Kultala, Bibeksarani, Bijaynagar, Nimbagan and Fingapara are neighbourhoods in Naihati, though some consider them to a part of Naihati.

The main road is around 5-10 meter away from the college buildings. The Hukum Chand Jute Mill is located in the 5 km radius of the college campus.

The college has only one shift and starts from 10:30 am and closes at 4:30 pm. Total 3734 (approx) students are studying in different under graduate programs viz BSc, B Com and BA (Hons) and (Gen) and also in two PG programs viz. in English and Zoology.

The college is desirous to adopt the "Green Campus" system for environmental conservation andsustainability. There are three main pillars i.e.

- Zero environmental foot print
- Positive impact on occupational health performance
- 100% graduates demonstrating environmental literacy.

The goal is to reduce CO_2 emission, energy and water use, while creating an atmosphere where students can learn and be healthy. The college administration works on the several factors of "Green Campus" including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity.

Objectives of the Study

The main objective of the green audit is to promote the Environment Management and conservation in the College Campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

1. Verifying compliance: Verifying compliance with standards or best available techniques.
2. Identifying problems: Detecting any leakage, spills or other such problems with the operations and processes.
3. Formulating environmental policy: Formulating the organization's environmental policy if there is no existing policy.
4. Measuring environmental impact: Measuring the environmental impact of each and every process and operation on the air, water, soil, worker health and safety and society at large.
5. Measuring performance: Measuring the environmental performance of an organization against bestpractices.
6. Confirming environmental management system effectiveness: Giving an indication of the effectiveness of the system and suggestions for improvement.
7. Providing a database: Providing a database for corrective action and future plans.
8. Developing the organization's environmental strategy: Enabling management to develop itsenvironmental strategy for moving towards a greener corporate and performance culture.
9. Communication: Communicating its environmental performance to its stakeholder's through reporting which will enhance the image of the organization.

General steps of Audit

1. Systematic and comprehensive data collection
2. Documentation with physical evidences
3. Independent periodic evaluation with regulatory requirements and appropriate standards
4. Systematic and comprehensive improvement and management of existing system.

The audit process

- **Pre-audit activities**

The pre-audit activities include the following:

1. The sites / area /division that are to be audited need to be determined and selected.
2. The Audit Team was informed on the date of the audit which enabled them to adjust and become used to the concept.
3. The audit scopes were identified. Audit Team was consulted when establishing the scope.
4. The audit plan was designed in such a way that it accommodated changes based on information gathered during the audit and effective use of resources.
5. Audit team and assignment of responsibility were established.
6. The required working papers were collected. This facilitated the investigations of audit team on the sites.
7. The background information on the facility including the facility organization, layout and processes, and the relevant regulations and standards, were collected.
8. The background information on the site's historical uses, and the location of soil and ground water contamination were collected.
9. The pre-audit questionnaire was informed to auditee.

- **Onsite audit activities**

The onsite audit includes:

1. The opening meeting is the first step between the audit team and college authority. Inthis meeting the purpose of audit, the procedure and the time schedule were discussed.
2. Site inspection is the second step for onsite activity. In this step the audit team discovered matters which are important to the audit but which were not identified at the planning stage.
3. Onsite phase of the audit developed a working understanding of how the facility manages the activities that influence the environment and how any EMS, if there is one, works.
4. Assessed strengths and weaknesses, controls and risks associated with their failure were established.
5. Gathering audit evidence ie, collecting data and information using audit protocol.
6. Communicated with the Audit Team to obtain most information.
7. Evaluated the audit evidence against the objectives established for the audit.
8. An exit meeting to explain the audit findings.

Methodology

In order to perform green audit, the methodology included different tools such as preparation of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. The study covered the following areas to summarize the present status of environment management in the campus:

- Water management
- Energy Conservation
- Waste management
- E-waste management
- Green area management
- Green Practices

View of Naihati

View of Rishi Bankim Chandra College, Naihati

Water Audit

Evaluating the facility of raw water intake and determining the facilities for water treatment. Water harvesting is the best technique that can be adopted by simply storing water and using it at the time of scarcity.

Water Use

This indicator addresses water consumption, water sources, irrigation, storm water, appliances and fixtures. A water audit is an on-site survey and assessment to determine the water use and hence improving the efficiency of its use.

Observations

The study observed that natural spring is major source of supply of water. Water is used for drinking purpose, toilets, laboratory and gardening. During the survey, no loss of water is observed, neither by any leakages nor by over flow of water from overhead tanks. However, during Monsoon season very less amount of overflow takes place through drains. The data collected from all the departments is examined and verified. On an average the total use of water in the college is 1650 L/day which include domestic purposes, gardening and for different laboratories.

The work on rain water harvesting is under process. There is rain water storage unit in the Diamond Jubilee block, at the eastern side of the main campus, which was constructed XI plan grant. It was inaugurated in September 2016.

Recommendations

- Need of monitoring, controlling overflow is essential and periodically supervision drills should be arranged. In campus small scale/medium scale/large scale reuse and recycle of water system is necessary.
- Minimize wastage of water and use of electricity during water filtration process, if used.

- Ensure that all cleaning products used by college 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.

Audit Framework and detailed findings: Water management

Control objective	Control(s)	Audit Observation
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 done to control water wastage.
	Install appliances which reduce water consumption	Practiced as much as possible.
	Encourage a decrease in water usage among staff, students and conference guests	College does encourage a decrease in water usage among staff, students and conference guests. The water consumption is minimal.
	Purchase the most efficient washing machines and dishwashers available which have an economy setting as default	These are not required by the college.
	Use an efficient and hygienic water storage mechanism to minimize the loss of water during storage	The college cleans the reservoirs in regular intervals (twice a year) **.**
	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	The college has RO to filtrate the water.
	Install Water recycling mechanism, such as rain water harvesting system	The college has Rain water Storage system.

Energy Audit

It deals with the energy conservation and methods to reduce the consumption and the related pollution.

Energy Conservation

This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliance, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment.

Observations

Total energy consumption is determined as 8579 KWH/Year by major energy consuming equipment. All the departments and common facility centers are equipped with LED lamps. Approximately 51 LED bulbs are counted during survey. The college has 32 Air conditioning machine. Equipment like Computers (161 nos with TFT monitors and 06 laptops) and printers (22) are used with power saving mode. The college conducts the switch off drills at regular intervals. In the laboratories the switch is shut down after occupancy time and is one of the green practices for energy conservation.

Recommendations

- 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.
- Appreciate that it is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity.
- Installation of more LED lamps instead of CFL.

Audit Framework and detailed findings: Energy management

Control objective	Control(s)	Audit Observation
	Support renewable and carbon-neutral electricity Optionson any energy-purchasing consortium, with the aim of supplying all college properties with electricity that can be attributed to renewable and carbon-neutral sources.	No, the college does not have any choice of 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.
Reduce energy consumption, especially of energy derived from fossil fuels	Appreciate that it is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity	The College have no choice other than *WEST BENGALSTATE ELECTRICITY DISTRIBUTION COMPANY LIMITED*. The company is a PSU of Govt of West Bengal. The company which invests Roof top Solar PV systems.
	Look in to the possibility of on-site micro-generation of renewable electricity.	The College has no Solar panel for the supply of renewable energy.
	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 as much as practicable.
	Provide energy efficient heating systems, with adjustable controls for individual heating appliances wherever possible, and ensure that comprehensible instructions are available to staff and students on the use of heating controls.	No Room Heaters are used in winter season.

	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. Visible reminders are placed above every switch to turn off lights when not in use.
	Monitor and understand the importance of different sources of college energy consumption, and set appropriate and measurable targets for a reduction in certain areas of consumption and/or in the overall consumption of energy.	Disconnect the supply of electricity when notrequired.(Specially during the month long winter vacation).
	Conduct switch off drills at regular intervals	College conducts switch off drills at regular intervals.
	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	All electronic and electricalequipment are switched offwhen not in use. Equipment are configured in power saving mode when such option is available.
	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	Equipment are running on standby mode.

Waste Management Audit

This indicator addresses waste production and disposal of different wastes like paper, food, plastic, biodegradable, construction, glass, dust etc. and recycling. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair, and reuse. Solid waste generation and management is a burning issue. Unscientific handling of solid waste can create threat to everyone. The survey focused on volume, type and current management practice of solid waste generated in the campus. The different solid wastes collected are as mentioned above.

Waste Conservation

Good waste management does more than just clean up the environment – it can also provide diverse benefits for communities that engage in waste management activities.
The broader challenge towards the waste management is to develop local/institutional waste management strategies and to embed local processes to ensure sustainability.

Observations

The total solid waste collected in the campus is 10 Kg/day. Waste generation from tree droppings and lawn management is a major solid waste generated in the campus. The waste is segregated at source by providing separate recycle bins for Bio-degradable (Green colored bins) and Plastic waste (Blue colored bins). Single sided used papers reused for writing and printing in offices and all departments. Unimportant and non-confidential reports/ papers are sent for pulping and recycling after completion of their preservation period. Very less plastic waste (0.1Kg/day) is generated by some departments, office; garden etc. Metal waste waste is stored and given to authorized scrap agents for further processing. Few glass bottles are reused. The college has practice of paperless office work in administration as much as possible and as a result there is less carbon emission from printers, no carbon copy of bills, filing of cartridge outside the office (if necessary) is observed.

The use of single-use plastic carry bags (having thickness less than 5 micron), plastic flags, cups, plates etcare completely banned inside the college campus since the college reopened after pandemic. The notice of banning such items inside the campus was issued on 11.11.2021.

Solid waste from canteen like food wastes are stored in bins and later deposited in pits; these wastes and vegetable wastes are collected into pits for making compost. This compost is utilized in college gardens; liquid wastes are disposed carefully through well drainage system.

Recommendations

- Reduce the absolute amount of waste that is produced from college staff offices.
- Make full use of all recycling facilities provided by the local authority and private suppliers, including glass, cans, plastic bottles, batteries, print cartridges, cardboard and furniture.
- Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated.
- Single sided papers to be used for writing and photocopy.

Audit Framework and detailed findings: Waste Management

Control objective	**Control(s)**	**Audit Observation**
Maximizethe proportionof waste that isrecycled & minimize the quantity of non-recyclable refuse	Reduce the absolute amount of waste that is produced from college staff offices.	The college has to a certain level controlled the amount of waste that it produces from staff offices.
	Make full use of all recycling facilitiesprovided by Municipality and private suppliers, including glass, cans, plastic bottles, batteries, printcartridge, cardboard and furniture.	Yes. College uses the facilities provided by the local authority to recycle the wastes.
	Compost, or cause to be composted, allorganic waste, green waste and un-recycled cardboard produced in or collected from kitchens, gardens, offices and rooms.	College has waste composting facility.
	Recycle or safely dispose of white goods, computers and electrical appliances.	Safe disposal through authorized agents for computers and electrical wastes.
	Use reusable resources and containers and avoid unnecessary packaging where possible	College tries to use reusable resources and avoid unnecessary packaging where possible
	Always purchase recycled resourceswhere these are both suitable and available.	College tries to purchase recycled resources where these are bothsuitable and available.

	Provide sufficient, accessible and well- publicized collection points for recyclable waste, with responsibility for recycling clearly allocated	Yes. College has sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated
	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	Yes! College arranged the events withleast production of waste.
	Promote reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives	Yes!, the college has promoted reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives
	Promote reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives	Yes, the college dispose all waste, whether solid or otherwise, in a scientific manner and ensure that it is not released directly to the environment.
	Adoption of paperless office to reduce waste.	Yes! College has implemented paper less office partially.

E-waste Management Audit

E-waste can be described as electronic equipment that is near or at the end of its useful life. E-waste makes up about 5% of all municipal solid waste worldwide but is much more hazardous than other waste because electronic components contain cadmium, lead, mercury, and Polychlorinated biphenyls (PCBs) that can damage human health and the environment.

E-waste Management System

Electronic waste or e-waste is generated when electronic and electrical equipment become unfit for their originally intended use or have crossed the expiry date. Computers, servers, mainframes, monitors, compact discs (CDs), printers, scanners, copiers, calculators, fax machines, battery cells, cellular phones, transceivers, TVs, iPods, medical apparatus, washing machines, refrigerators, and air conditioners are examples of e-waste (when unfit for use).

E-waste typically consists of metals, plastics, cathode ray tubes (CRTs), printed circuit boards, cables, and so on. Valuable metals such as copper, silver, gold, and platinum could be recovered from e-wastes, if they are scientifically processed. The presence of toxic substances such as liquid crystal, lithium, mercury, nickel, polychlorinated biphenyls (PCBs), selenium, arsenic, barium, brominated flame retardants, cadmium, chrome, cobalt, copper, and lead, makes it very hazardous, if e-waste is dismantled and processed in a crude manner with rudimentary techniques. E-waste poses a huge risk to humans, animals, and the environment. The presence of heavy metals and highly toxic substances such as mercury, lead, beryllium, and cadmium pose a significant threat to the environment even in minute quantities.

Consumers are the key to better management of e-waste. Initiatives such as Extended Producer Responsibility (EPR); Design for Environment (DfE); Reduce, Reuse, Recycle (3Rs), technology platform for linking the market facilitating a circular economy aim to encourage consumers to correctly dispose their e-waste, with increased reuse and recycling rates, and adopt sustainable consumer habits.

Observation

E-waste generated in the college is very less. It is handled, treated and disposed in scientific way. There are 161 computers (with TFT monitors), 22 printers and 02 photo copier and 04 projectors are available in the college. The college generates some e-waste like chips, bulbs, circuit boards, mother boards, computers, batteries, relays, and switches. The non-working computers, spare parts and other non-working electrical equipment are stored in separate places. The college has intention to adopt the Buyback policy. Average E-waste handled is 12 kg (approx) in last year and disposed off through authorized vendors.

Recommendations

- Recycle or safely dispose of white goods, computers and electrical appliances.
- Use reusable resources and containers and avoid unnecessary packaging where possible. Always purchase recycled resources where these are both suitable and available.

Audit Framework and detailed findings: E Waste Management

Control objective	Control(s)	Audit Observation
Reduce the E waste generation	Adoption of Extended Producer Responsibility (EPR), Design for Environment (DfE); Reduce, Reuse, Recycle (3Rs). The EPR is an environment protection strategy that makes the producer responsible for the entire life cycle of the product, especially for take back, recycle and final disposal of the product.	College has no specific policy for E waste management. Time to time E waste are sold out to selected vendors who can possible reuse some components and effectively dispose the rest.

COMPUTER LAB

Green area Management Audit

This includes the plants, greenery and sustainability of the campus to ensure that the buildings conform to green standards. This also helps in ensuring that the Environmental Policy is enacted, enforced and reviewed using various environmental awareness programs.

Green Area

Green spaces are important reservoirs of biodiversity, providing resources, ecosystem services and habitats for species of interest, improving functional and structural connectivity at the urban level.

Observations

There are 3140 sqft land which is available as green area. Campus is located in the vicinity of different types of species of plants. The campus is enriched by different bio diversities like bryophytes, pteridophytes, arthropod, mollusca and reptiles. Various tree plantation programs are being organized at college campus. This program helps in encouraging eco-friendly environment which provides pure oxygen within the institute and awareness among local people. The plantation program includes various types of indigenous species of ornamental and medicinal wild plant species. There is garden which is maintained by the gardener. The NSS unit of the college and the members of Nature club of the college also look after the college greenery. The college has taxonomically identified all the plants available in the campus.

There is a college beatification subcommittee as well to look after and plan for greening of the campus.

Recommendations

- Promote environmental awareness as a part of course work in various curricular areas, independent research projects, and community service.
- Create awareness of environmental sustainability and take action to ensure environmental sustainability.
- Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings.

Audit Framework and detailed findings: Green Area Management

Control objective	Control(s)	Audit Observation
Development of green area tocompensate CO_2.	Proper Land use pattern to develop green area.	No. There is no proper land use policy of the college.
	Proper Taxonomical identification of plants in the campus.	The plants inside the campusis identified and marked properly.
	Conduct Environmen tAwareness program.	Environment Awareness program i s regularly organizedby the college authority.

Taxonomical identification of plants in the campus

	Scientific name	Family	Local name	Number of plants
1	*Aloe barbadensis*	Liliaceae	Grithakumari	2
2	*Andrographis paniculata*	Acanthaceae	Kalmegh	2
3	*Asparagus officinalis*	Asparagaceae	Satamuli	1
4	*Azadirachta indica*	Meliaceae	Neem	1
5	*Bacopa monnieria*	Scrophulariaceae	Brahmi	1
6	*Boerrahavia repens*	Nyctaginaceae	Punarnaba	1
7	*Calotropis gigantea*	Asclepiadaceae	Akanda	1
8	*Catharanthus roseus*	Apocynaceae	Nayantara	2
9	*Centella asiatica*	Apiaceae	Thankuni	1
10	*Cissus quadrangularis*	Euphorbiaceae	Harjora	1
11	*Clitoria ternatea*	Fabaceae	Aparajita	1
12	*Crotalaria pallida*	Fabaceae	Atosi	1
13	*Cycas circinalis*	Cycaceae	Cycas Male	1
14	*Cycas circinalis*	Cycaceae	Cycas Female	1
15	*Cymbopogon sp.*	Poaceae	Citronella	1
16	*Datura metel*	Solanaceae	Dhutra	1
17	*Digitalis purpurea*	Plantaginaceae	Purple foxglove	1
18	*Dracaena sp.*	Asparagaceae	Dracaena	1
19	*Eclipta prostrata*	Asteraceae	Kesuth	1
20	*Glycyrrhiza glabra*	Fabaceae	Jastimadhu	2
21	*Gymnema sylvestre*	Asclepiadaceae	Gurmar	1
22	*Helianthus annus*	Asteraceae	Surjomukhi	1
23	*Heliotropium indicum*	Boraginaceae	Hatisur	1
24	*Hemidesmus indicus*	Asclepiadaceae	Ananatamul	1
25	*Holarrhena pubescens*	Apocynaceae	Kurchi	1
26	*Hydrilla verticillata*	Hydrocharitaceae	Hydrilla	2
27	*Ixora coccinea*	Rubiaceae	Rangan	1
28	*Jatropha gossypifolia*	Euphorbiaceae	Bherenda	1
29	*Justicia adhatoda*	Acanthaceae	Basak	1
30	*Leonurus sibiricus*	Lamiaceae	Raktadron	1
31	*Mentha spicata*	Lamiaceae	Pudina	1

32	*Mimosa pudica*	Fabaceae	Lajabati	1
33	*Nerium indicum*	Apocynaceae	Korobi	1
34	*Nymphaea rubra*	Nymphaeaceae	Lal Shaluk	2
35	*Ocimum basilicum*	Lamiaceae	Babui Tulsi	2
36	*Ocimum gratissimu*m	Lamiaceae	Ram Tulsi	2
37	*Paederia scandens*	Rubiaceae	Gandal	2
38	*Papaver somniferum*	Papaveraceae	Posto	2
39	*Piper nigrum*	Piperaceae	Golmorich/Black Pepper	2
40	*Plantago ovata*	Plantaginaceae	Isabgol	2
41	*Plumbago zeylanica*	Plumbaginaceae	Lalchita	2
42	*Psoralea corylifolia*	Fabaceae	Babchi	2
43	*Rauvolfia serpentina*	Apocynaceae	Sarpagandha	2
44	*Ravenala madagascariensis*	Musaceae	Panthapadap/ Traveller's Palm	1
45	*Rhoeo discolor*	Commelinaceae	Rhoeo	2
46	*Rivina humilis*	Petiveriaceae	Lal Jhanti	1
47	*Selaginella* sp.	Sellaginaceae	Selaginella	1
48	*Setcreasea Purpurea*	Commelinaceae	Setcreasea	1
49	*Solanum torvum*	Solanaceae	Bon-Begun	1
50	*Stevia rebaudiana*	Astearceae	Mistipata	2
51	*Tinospora cordifolia*	Menispermaceae	Guloncha	1
52	*Tylophora indica*	Asclepiadaceae	Antamul	1
53	*Uraria picta*	Fabaceae	Sankarjata	2
54	*Vitex negundo*	Verbenaceae	Nishinda	1
55	*Withania somnifera*	Solanaceae	Ashwagandha	2
56	*Zamia furfuracea*	Zamiaceae	Zamia	1
57	*Zea mays*	Poaceae	Bhutta	2
58	Bombax ceiba	Malvaceae	Simul	1
59	Delonix regia	Fabaceae	Gulmohur	1
60	Mimusops elengi	Sapotaceae	Bokul	1
61	Polyalthia logifolia	Annonaceae	Debdaru	6

Aloe barbadensis

Clitoria ternatea

Gymnema sylvestre

Mentha spicata

Plumbago zeylanica

Tinospora cordifolia

Polyalthia logifolia

Mimusops elengi

Stevia rebaudiana

Green Practices

"Going **green**" means to pursue knowledge and **practices** that can lead to more environmentally friendly and ecologically responsible decisions and lifestyles, which can help protect the environment and sustain its natural resources for current and future generations. Green Practice includes

1. **Green purchasing**
2. **Green transportation**
3. **Campaign for Go Green**
4. **Green Policy**

Green Practice Audit

Control objective	Control(s)	Audit Observation
Ensure that improvements, purchases and developments are environmentally sound	Seek and act upon professional advice in order to minimize the adverse environmental impact of any new developments and exceed government regulatory requirements. This includes efficient heating and water systems, appropriate space for recycling, and the use of recycled and/or sustainable building materials where possible.	The college has contacted and acts upon professional advice in order to minimize the adverse environmental impact of any new developments and Government regulatory requirements.
	Purchase efficient and environmentally sound appliances	College is positive about increasing greenery by planting in front of the college and maintaining potted plants scientifically as much as possible.
	Purchase food that has been produced and delivered with minimal impact on the environment, this includes buying locally produced, organic and free range food wherever possible.	No, college does not purchase food stuff as the canteen facility is available from 10 am to 5 pm on all working days.
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 with good surface transport. Faculty members, Office staff and students are attending the college by public transport or by own transport like motor cycle etc. A well maintained parking place is available for the two wheelers and four wheelers.

	Reduce the proportion of travel on College business carried out in private transport and eliminate unnecessary and inefficient use of college vehicles	No, college has no vehicle. College uses hired vehicle whenever it is required. Most of the time use Public transport for official works.
	Promote car sharing / car pool among the students and faculty members	Both students and faculty members use either public transport and very less own vehicle.
Minimize the use of chemical pollutants	Ensure that all cleaning products used by college 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 washing liquids are used in the college and all the toilet cleaners are Eco friendly.
	Reduce the practice of burning Plastic and other material that emits harmful gas on burning is prevented in the campus.	The college is plastic free zone. Single use plastic was banned in the campus ever since November, 2021.
	Establish a Garden in the campus.	The college has already maintained garden of 1200 sft (approx) and 57 types of plants are there.
	Minimize the use of fertilizers and pesticides in college grounds, opting for the use of compost produced on site wherever possible.	Negligible amount of fertilizers and pesticides are used in the college.
	Encourage the faculties and students to plant trees in the garden.	Faculty members and students know the importance of the tree plantation.
	Reviews periodically the list of trees planted in the garden.	Such review is conducted on frequent basis.
	Conduct environmental awareness workshops as a part of the program.	The College regularly organizes camps, seminar, and workshops.
	Conduct events such as plant trees to spread environmental awareness among the students	The different groups of College students usually do that.

Ensure that environmentalawareness is created	Create awareness of environmental sustainability and takes actions to ensure environmental sustainability.	Seminars and awareness programmes are conducted on Nature and natural resources, wildlife for the Conservation of Biodiversity.
	Reduce the rate of contributes to the depletion and degradation of natural resources	College does not directly or indirectly involve 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	As per UGC guidelines the subject Environmental Studies is introduced in the curriculum of all the streams. Under this curriculum, students have to appear the examination at the end of 1st semester for two academic credit points.
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 suchbuildings, offering greatest efficiency for energy and water usage, and reducing carbon emission.	The college buildings are more than 50 years old and follow the standards of architecture. The college is a septuagenarian institution, having the main building built back in 1948.
Ensure that the Environmental Policy is enacted, enforced and reviewed	Establish a College 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.	The college has Nature and Nurture Club which looks after the Environment Protection and Campus Beautification. The club also regularly monitors and advocates for environment protection measures and development of green area.
	Ensure that on the Nature Club there will be appropriate representatives of the relevant college departments and authorities – such as catering, gardening, maintenance, cleaning and finance	The college has its Nature Club comprising the staff and students of different departments.

	Ensure that on the Environmental Committee there will be the Green Officer from an external agency who is engaged in the profession of providing guidance on environmental impact	The college has no such Green Officer.
	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 Protection Committee reviews the policy periodically.
	Ensure that the Environmental Policy is enforced regardless of whether its requirements exceed the mandate of the law	Environmental policy of the College: "No to water & Electricity misuse; Optimal waste management".
	Require that every staff and student member recognizes their responsibility to ensure that the commitments in the Environmental Policy are properly put into practice	Every staff and student member recognizes their responsibility to ensure their commitments to the Environment.
	Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings	Green audit is conducted annually.

Recommendations

- The Environmental Protection Committee should be empowered to look after allthe green practices in the college
- More Seminar/ workshop should be organized to create the awareness of Environmental conservation among the students and other stake holders**.**

Green Campus of Rishi Bankim Chandra College

Green Activities of the campus

Conclusion

Considering the fact that the institution is predominantly an under-graduate college, there is significant concern over the environmental conservation both by faculty and students. The environmental awareness initiatives are substantial. The efforts towards paperless work system are noteworthy. Besides, environmental awareness programmes initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of waste management using Eco-friendly and scientific techniques. This may lead to a prosperous future in the context of Green Campus and thus sustainable environment and community development.

As part of green audit of the campus, we also carried out the environmental monitoring of campus which includes illumination, Noise level, and Ventilation and Indoor Air quality of the class room. It was observed that illumination and Ventilation is adequate considering natural light and air velocity present. Noise level in the campus is below 50 dB at day time which is well within the limit.

Green Audit Report, 2020-21
Of
RISHI BANKIM CHANDRA COLLEGE
Naihati, West Bengal

Audited By:
Dr Indranil Ghosh

Ref: GA/RBC/2020-21/02

CERTIFICATE

This is to certify that Rishi Bankim Chandra College, Naihati, West Bengal has conducted detailed Environmental Green Audit for 2020-21 Academic year for their campus and submitted necessary data and credentials for scrutiny. The activity and measure carried out by the college and was found satisfactory. The efforts taken by the students, faculty members and the college authority towards Environment and Sustainability is Highly Appreciated and commendable.

Dr Indranil Ghosh

Environmental Auditor

Executive Summary

In accordance with the Environmental policy of Rishi Bankim Chandra College for 2020-21, the green audit of the college was conducted in 2nd December, 2021.

The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the standard Green Policy adopted by different academic institution and the college itself. 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 as the degree to which the College is in compliance with the applicable regulations, policies and standards.

During the initial planning of the audit, an analysis was conducted in order to identify, predict, evaluate and prioritize the parameters associated with the environmental sustainability. 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 System (EMS) in the campus. The criteria and methods used in the audit were based on the identified impacts. The methodology used included physical inspection of the campus, review of the relevant documentation and interviews.

Acknowledgement

We would like to thank Prof Dr. Sanjib Kumar Saha, Principal of Rishi Bankim Chandra College for his consent to conduct this audit. We would like to sincerely thank all the Departments, students, teaching and non-teaching staff for their kind cooperation with us during this survey.
We would also like to express our special thanks to Prof Dr. Mainak Roy, Coordinator, IQAC for his dedicated and sincere effort to make the report complete.

Assurance

This audit has been conducted in accordance with the *International Standards for the Professional Practice of Auditing*.

In our professional judgment, sufficient 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.

Introduction

Green Audit can be defined as a systematic, documented, periodic and objective review by regulated entities of facility operations and practices related to meeting the environmental requirements. The "Green Audit" aims to analyze environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. It was initiated with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment as whole. Through Green Audit, one gets a direction as to how to improve the condition of environment. There are various factors that have determined the growth of carrying out Green Audit.

There is a relationship between Green Audit and Sustainable Development of any organization.The primary need for achieving the sustainable development of any organization is to determine the Green Audit policy, Green Audit Framework, Accurate implementation, and result analysis of it. Strong Green Audit process can help to achieve the sustainability. Green Audit framework helps to achieve the goal set by an organization. Green Audit is linked to Sustainable development process. Green Audit and sustainable development process help to reduce the wastage and associated cost as well as increases the product quality.

Green audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India which declares the institutions as Grade A, B or C according to the scores assigned during the accreditation.

About the College

Rishi Bankim Chandra College is a multi-faculty (Arts, Science and Commerce faculties) co-education College, offering Honours & General and PG Courses affiliated to the West Bengal State University.

In June 1948, the college was shifted to its present premises. It comprises integrated college buildings on two adjacent plots on 1.3 acre and a large playground with gallery-shed on fully walled and high-fenced 3.5-acre of land. The college is located near Rishi Bankim Chandra's ancestral home at East Kantalpara, forty three kilometers north of Kolkata, on the eastern bank of River Hooghly, and is well connected by roads, Kalyani Expressway and the Railways. The

nearest Railhead is Naihati under Sealdah North Division of Eastern Railways. A four-storied building, State-of-art Diamond Jubilee Block was inaugurated on 15th January 2011. It presently houses 2 post-graduate (P.G.) and 5 under graduate (U.G.) departments of the college. A three-storied Students' Amenities Block houses the Students' Canteen on Ground floor and Union rooms on 1st Floor was inaugurated in 2006, the 2nd floor was completed in 2019 with a Seminar Hall. A two-storied building was also added for infrastructural expansion in 2019.

The campus is located 43 km away from Kolkata. The nearest Railway Station Sealdah is 37 km and Netaji Subhas Intenational airport, Kolkata is 32 KM away from here respectively. Naihati is located at 22.9°N 88.42°E. It has an average elevation of 15 metres.

Naihati is bounded by Garifa, Halisahar and Balibhara on the north, Ramghat, Saheb Colony, Indira Nagar, Rajendrapur, Mamudpur and Dogachhia on the east, Bhatpara and Madral on the south, and the Hooghly on the west. Although not specifically spelled out, it is evident that localities such as Garifa, Kultala, Bibeksarani, Bijaynagar, Nimbagan and Fingapara are neighbourhoods in Naihati, though some consider them to a part of Naihati.

The main road is around 5-10 meter away from the college buildings. The Hukum Chand Jute Mill is located in the 5 km radius of the college campus.

The college has only one shift and starts from 10:30 am and closes at 4:30 pm. Total 4709 students are studying in different under graduate programs viz BSc, B Com and BA (Hons) and (Gen) and also in two PG programs viz. in English and Zoology.

The college is desirous to adopt the "Green Campus" system for environmental conservation andsustainability. There are three main pillars i.e.

- Zero environmental foot print
- Positive impact on occupational health performance
- 100% graduates demonstrating environmental literacy.

The goal is to reduce CO_2 emission, energy and water use, while creating an atmosphere where students can learn and be healthy. The college administration works on the several factors of "Green Campus" including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity.

Objectives of the Study

The main objective of the green audit is to promote the Environment Management and conservation in the College Campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

1. Verifying compliance: Verifying compliance with standards or best available techniques.
2. Identifying problems: Detecting any leakage, spills or other such problems with the operations and processes.
3. Formulating environmental policy: Formulating the organization's environmental policy if there is no existing policy.
4. Measuring environmental impact: Measuring the environmental impact of each and every process and operation on the air, water, soil, worker health and safety and society at large.
5. Measuring performance: Measuring the environmental performance of an organization against bestpractices.
6. Confirming environmental management system effectiveness: Giving an indication of the effectiveness of the system and suggestions for improvement.
7. Providing a database: Providing a database for corrective action and future plans.
8. Developing the organization's environmental strategy: Enabling management to develop itsenvironmental strategy for moving towards a greener corporate and performance culture.
9. Communication: Communicating its environmental performance to its stakeholder's through reporting which will enhance the image of the organization.

General steps of Audit

1. Systematic and comprehensive data collection
2. Documentation with physical evidences
3. Independent periodic evaluation with regulatory requirements and appropriate standards
4. Systematic and comprehensive improvement and management of existing system.

The audit process

- **Pre-audit activities**

The pre-audit activities include the following:

1. The sites / area /division that are to be audited need to be determined and selected.
2. The Audit Team was informed on the date of the audit which enabled them to adjust and become used to the concept.
3. The audit scopes were identified. Audit Team was consulted when establishing the scope.
4. The audit plan was designed in such a way that it accommodated changes based on information gathered during the audit and effective use of resources.
5. Audit team and assignment of responsibility were established.
6. The required working papers were collected. This facilitated the investigations of audit team on the sites.
7. The background information on the facility including the facility organization, layout and processes, and the relevant regulations and standards, were collected.
8. The background information on the site's historical uses, and the location of soil and ground water contamination were collected.
9. The pre-audit questionnaire was informed to auditee.

- **Onsite audit activities**

The onsite audit includes:

1. The opening meeting is the first step between the audit team and college authority. Inthis meeting the purpose of audit, the procedure and the time schedule were discussed.
2. Site inspection is the second step for onsite activity. In this step the audit team discovered matters which are important to the audit but which were not identified at the planning stage.
3. Onsite phase of the audit developed a working understanding of how the facility manages the activities that influence the environment and how any EMS, if there is one, works.
4. Assessed strengths and weaknesses, controls and risks associated with their failure were established.
5. Gathering audit evidence ie, collecting data and information using audit protocol.
6. Communicated with the Audit Team to obtain most information.
7. Evaluated the audit evidence against the objectives established for the audit.
8. An exit meeting to explain the audit findings.

Methodology

In order to perform green audit, the methodology included different tools such as preparation of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. The study covered the following areas to summarize the present status of environment management in the campus:

- Water management
- Energy Conservation
- Waste management
- E-waste management
- Green area management
- Green Practices

View of Naihati

Rishi Bankim Chandra College, Naihati

Water Audit

Evaluating the facility of raw water intake and determining the facilities for water treatment. Water harvesting is the best technique that can be adopted by simply storing water and using it at the time of scarcity.

Water Use

This indicator addresses water consumption, water sources, irrigation, storm water, appliances and fixtures. A water audit is an on-site survey and assessment to determine the water use and hence improving the efficiency of its use.

Observations

The study observed that natural spring is major source of supply of water. Water is used for drinking purpose, toilets, laboratory and gardening. During the survey, no loss of water is observed, neither by any leakages nor by over flow of water from overhead tanks. However, during Monsoon season very less amount of overflow takes place through drains. The data collected from all the departments is examined and verified. On an average the total use of water in the college is 1100 L/day which include domestic purposes, gardening and for different laboratories.

The work on rain water harvesting is under process. There is rain water storage unit in the Diamond Jubilee block, at the eastern side of the main campus, which was constructed XI plan grant. It was inaugurated in September 2016.

Recommendations

- Need of monitoring, controlling overflow is essential and periodically supervision drills should be arranged. In campus small scale/medium scale/large scale reuse and recycle of water system is necessary.
- Minimize wastage of water and use of electricity during water filtration process, if used.

- Ensure that all cleaning products used by college 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.

Audit Framework and detailed findings: Water management

Control objective	Control(s)	Audit Observation
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 done to control water wastage.
	Install appliances which reduce water consumption	Practiced as much as possible.
	Encourage a decrease in water usage among staff, students and conference guests	College does encourage a decrease in water usage among staff, students and conference guests. The water consumption is minimal.
	Purchase the most efficient washing machines and dishwashers available which have an economy setting as default	These are not required by the college.
	Use an efficient and hygienic water storage mechanism to minimize the loss of water during storage	The college cleans the reservoirs in regular intervals (twice a year) **.**
	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	The college has RO to filtrate the water.
	Install Water recycling mechanism, such as rain water harvesting system	The college has Rain water Storage system.

Energy Audit

It deals with the energy conservation and methods to reduce the consumption and the related pollution.

Energy Conservation

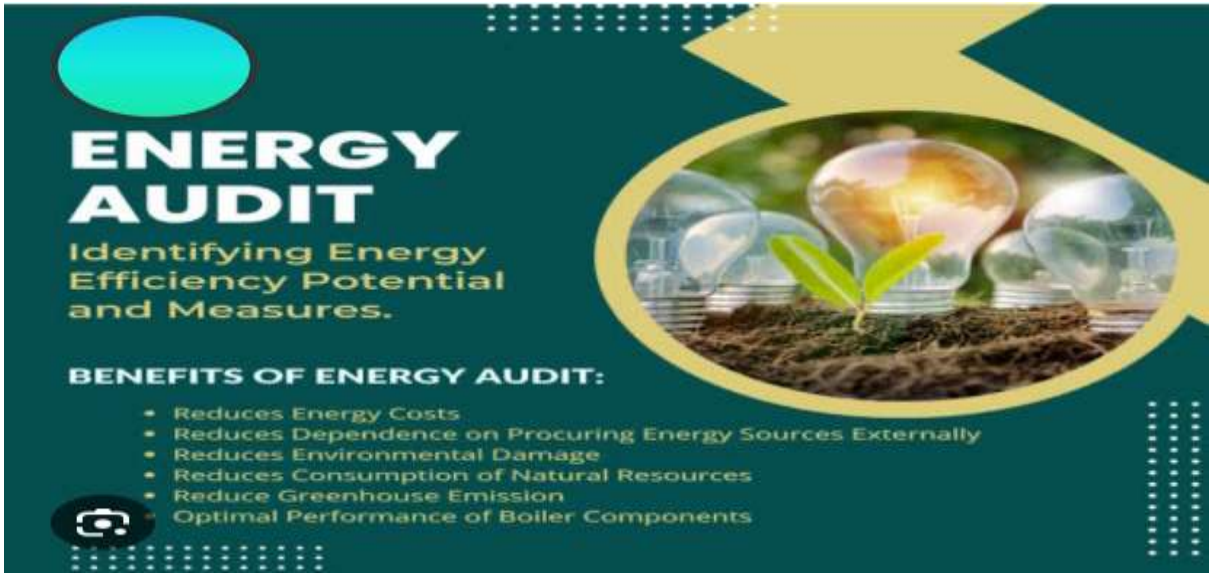
This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliance, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment.

Observations

Total energy consumption is determined as 2578 KWH/Year by major energy consuming equipment. All the departments and common facility centers are equipped with LED lamps. Approximately 51 LED bulbs are counted during survey. The college has 32 Air conditioning machine. Equipment like Computers (161 nos with TFT monitors and 06 laptops) and printers (22) are used with power saving mode. The college conducts the switch off drills at regular intervals. In the laboratories the switch is shut down after occupancy time and is one of the green practices for energy conservation.

Recommendations

- 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.
- Appreciate that it is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity.
- Installation of more LED lamps instead of CFL.



Audit Framework and detailed findings: Energy management

Control objective	Control(s)	Audit Observation
	Support renewable and carbon-neutral electricity Optionson any energy-purchasing consortium, with the aim of supplying all college properties with electricity that can be attributed to renewable and carbon-neutral sources.	No, the college does not have any choice of 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.
Reduce energy consumption, especially of energy derived from fossil fuels	Appreciate that it is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity	The College have no choice other than *WEST BENGALSTATE ELECTRICITY DISTRIBUTION COMPANY LIMITED*. The company is a PSU of Govt of West Bengal. The company which invests Roof top Solar PV systems.
	Look in to the possibility of on-site micro-generation of renewable electricity.	The College has no Solar panel for the supply of renewable energy.
	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 as much as practicable.
	Provide energy efficient heating systems, with adjustable controls for individual heating appliances wherever possible, and ensure that comprehensible instructions are available to staff and students on the use of heating controls.	No Room Heaters are used in winter season.

	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. Visible reminders are placed above every switch to turn off lights when not in use.
	Monitor and understand the importance of different sources of college energy consumption, and set appropriate and measurable targets for a reduction in certain areas of consumption and/or in the overall consumption of energy.	Disconnect the supply of electricity when notrequired.(Specially during the month long winter vacation).
	Conduct switch off drills at regular intervals	College conducts switch off drills at regular intervals.
	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	All electronic and electricalequipment are switched offwhen not in use. Equipment are configured in power saving mode when such option is available.
	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	Equipment are running on standby mode.

Waste Management Audit

This indicator addresses waste production and disposal of different wastes like paper, food, plastic, biodegradable, construction, glass, dust etc. and recycling. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair, and reuse. Solid waste generation and management is a burning issue. Unscientific handling of solid waste can create threat to everyone. The survey focused on volume, type and current management practice of solid waste generated in the campus. The different solid wastes collected are as mentioned above.

Waste Conservation

Good waste management does more than just clean up the environment – it can also provide diverse benefits for communities that engage in waste management activities.
The broader challenge towards the waste management is to develop local/institutional waste management strategies and to embed local processes to ensure sustainability.

Observations

The total solid waste collected in the campus is 06 Kg/day. Waste generation from tree droppings and lawn management is a major solid waste generated in the campus. The waste is segregated at source by providing separate recycle bins for Bio-degradable (Green colored bins) and Plastic waste (Blue colored bins). Single sided used papers reused for writing and printing in offices and all departments. Unimportant and non-confidential reports/ papers are sent for pulping and recycling after completion of their preservation period. Very less plastic waste (0.1Kg/day) is generated by some departments, office; garden etc. Metal waste waste is stored and given to authorized scrap agents for further processing. Few glass bottles are reused. The college has practice of paperless office work in administration as much as possible and as a result there is less carbon emission from printers, no carbon copy of bills, filing of cartridge outside the office (if necessary) is observed.

The use of single-use plastic carry bags (having thickness less than 5 micron), plastic flags, cups, plates etc are completely banned inside the college campus .

Solid waste from canteen like food wastes are stored in bins and later deposited in pits; these wastes and vegetable wastes are collected into pits for making compost. This compost is utilized in college gardens; liquid wastes are disposed carefully through well drainage system.

Recommendations

- Reduce the absolute amount of waste that is produced from college staff offices.
- Make full use of all recycling facilities provided by the local authority and private suppliers, including glass, cans, plastic bottles, batteries, print cartridges, cardboard and furniture.
- Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated.
- Single sided papers to be used for writing and photocopy.

Audit Framework and detailed findings: Waste Management

Control objective	**Control(s)**	**Audit Observation**
Maximizethe proportionof waste that isrecycled & minimize the quantity of non-recyclable refuse	Reduce the absolute amount of waste that is produced from college staff offices.	The college has to a certain level controlled the amount of waste that it produces from staff offices.
	Make full use of all recycling facilitiesprovided by Municipality and private suppliers, including glass, cans, plastic bottles, batteries, print cartridge, cardboard and furniture.	Yes. College uses the facilities provided by the local authority to recycle the wastes.
	Compost, or cause to be composted, allorganic waste, green waste and un-recycled cardboard produced in or collected from kitchens, gardens, offices and rooms.	College has waste composting facility.
	Recycle or safely dispose of white goods, computers and electrical appliances.	Safe disposal through authorized agents for computers and electrical wastes.
	Use reusable resources and containers and avoid unnecessary packaging where possible	College tries to use reusable resources and avoid unnecessary packaging where possible
	Always purchase recycled resourceswhere these are both suitable and available.	College tries to purchase recycled resources where these are bothsuitable and available.

	Provide sufficient, accessible and well- publicized collection points for recyclable waste, with responsibility for recycling clearly allocated	Yes. College has sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated
	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	Yes! College arranged the events withleast production of waste.
	Promote reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives	Yes!, the college has promoted reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives
	Promote reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives	Yes, the college dispose all waste, whether solid or otherwise, in a scientific manner and ensure that it is not released directly to the environment.
	Adoption of paperless office to reduce waste.	Yes! College has implemented paper less office partially.

E-waste Management Audit

E-waste can be described as electronic equipment that is near or at the end of its useful life. E-waste makes up about 5% of all municipal solid waste worldwide but is much more hazardous than other waste because electronic components contain cadmium, lead, mercury, and Polychlorinated biphenyls (PCBs) that can damage human health and the environment.

E-waste Management System

Electronic waste or e-waste is generated when electronic and electrical equipment become unfit for their originally intended use or have crossed the expiry date. Computers, servers, mainframes, monitors, compact discs (CDs), printers, scanners, copiers, calculators, fax machines, battery cells, cellular phones, transceivers, TVs, iPods, medical apparatus, washing machines, refrigerators, and air conditioners are examples of e-waste (when unfit for use).

E-waste typically consists of metals, plastics, cathode ray tubes (CRTs), printed circuit boards, cables, and so on. Valuable metals such as copper, silver, gold, and platinum could be recovered from e-wastes, if they are scientifically processed. The presence of toxic substances such as liquid crystal, lithium, mercury, nickel, polychlorinated biphenyls (PCBs), selenium, arsenic, barium, brominated flame retardants, cadmium, chrome, cobalt, copper, and lead, makes it very hazardous, if e-waste is dismantled and processed in a crude manner with rudimentary techniques. E-waste poses a huge risk to humans, animals, and the environment. The presence of heavy metals and highly toxic substances such as mercury, lead, beryllium, and cadmium pose a significant threat to the environment even in minute quantities.

Consumers are the key to better management of e-waste. Initiatives such as Extended Producer Responsibility (EPR); Design for Environment (DfE); Reduce, Reuse, Recycle (3Rs), technology platform for linking the market facilitating a circular economy aim to encourage consumers to correctly dispose their e-waste, with increased reuse and recycling rates, and adopt sustainable consumer habits.

Observation

E-waste generated in the college is very less. It is handled, treated and disposed in scientific way. There are 161 computers (with TFT monitors), 22 printers and 02 photo copier and 04 projectors are available in the college. The college generates some e-waste like chips, bulbs, circuit boards, mother boards, computers, batteries, relays, and switches. The non-working computers, spare parts and other non-working electrical equipment are stored in separate places. The college has intention to adopt the Buyback policy. Average E-waste handled is 12 kg (approx) in last year and disposed off through authorized vendors.

Recommendations

- Recycle or safely dispose of white goods, computers and electrical appliances.
- Use reusable resources and containers and avoid unnecessary packaging where possible. Always purchase recycled resources where these are both suitable and available.

Audit Framework and detailed findings: E Waste Management

Control objective	Control(s)	Audit Observation
Reduce the E waste generation	Adoption of Extended Producer Responsibility (EPR), Design for Environment (DfE); Reduce, Reuse, Recycle (3Rs). The EPR is an environment protection strategy that makes the producer responsible for the entire life cycle of the product, especially for take back, recycle and final disposal of the product.	College has no specific policy for E waste management. Time to time E waste are sold out to selected vendors who can possible reuse some components and effectively dispose the rest.

Green area Management Audit

This includes the plants, greenery and sustainability of the campus to ensure that the buildings conform to green standards. This also helps in ensuring that the Environmental Policy is enacted, enforced and reviewed using various environmental awareness programs.

Green Area

Green spaces are important reservoirs of biodiversity, providing resources, ecosystem services and habitats for species of interest, improving functional and structural connectivity at the urban level.

Observations

There are 3140 sqft land which is available as green area. Campus is located in the vicinity of different types of species of plants. The campus is enriched by different bio diversities like bryophytes, pteridophytes, arthropod, mollusca and reptiles. Various tree plantation programs are being organized at college campus. This program helps in encouraging eco-friendly environment which provides pure oxygen within the institute and awareness among local people. The plantation program includes various types of indigenous species of ornamental and medicinal wild plant species. There is garden which is maintained by the gardener. The NSS unit of the college and the members of Nature club of the college also look after the college greenery. The college has taxonomically identified all the plants available in the campus.

There is a college beatification subcommittee as well to look after and plan for greening of the campus.

Recommendations

- Promote environmental awareness as a part of course work in various curricular areas, independent research projects, and community service.
- Create awareness of environmental sustainability and take action to ensure environmental sustainability.
- Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings.

Audit Framework and detailed findings: Green Area Management

Control objective	Control(s)	Audit Observation
Development of green area tocompensate CO_2.	Proper Land use pattern to develop green area.	No. There is no proper land use policy of the college.
	Proper Taxonomical identification of plants in the campus.	The plants inside the campusis identified and marked properly.
	Conduct Environmen tAwareness program.	Environment Awareness program i s regularly organizedby the college authority.

Taxonomical identification of plants in the campus

	Scientific name	Family	Local name	Number of plants
1	*Aloe barbadensis*	Liliaceae	Grithakumari	2
2	*Andrographis paniculata*	Acanthaceae	Kalmegh	2
3	*Asparagus officinalis*	Asparagaceae	Satamuli	1
4	*Azadirachta indica*	Meliaceae	Neem	1
5	*Bacopa monnieria*	Scrophulariaceae	Brahmi	1
6	*Boerrahavia repens*	Nyctaginaceae	Punarnaba	1
7	*Calotropis gigantea*	Asclepiadaceae	Akanda	1
8	*Catharanthus roseus*	Apocynaceae	Nayantara	2
9	*Centella asiatica*	Apiaceae	Thankuni	1
10	*Cissus quadrangularis*	Euphorbiaceae	Harjora	1
11	*Clitoria ternatea*	Fabaceae	Aparajita	1
12	*Crotalaria pallida*	Fabaceae	Atosi	1
13	*Cycas circinalis*	Cycaceae	Cycas Male	1
14	*Cycas circinalis*	Cycaceae	Cycas Female	1
15	*Cymbopogon sp.*	Poaceae	Citronella	1
16	*Datura metel*	Solanaceae	Dhutra	1
17	*Digitalis purpurea*	Plantaginaceae	Purple foxglove	1
18	*Dracaena sp.*	Asparagaceae	Dracaena	1
19	*Eclipta prostrata*	Asteraceae	Kesuth	1
20	*Glycyrrhiza glabra*	Fabaceae	Jastimadhu	2
21	*Gymnema sylvestre*	Asclepiadaceae	Gurmar	1
22	*Helianthus annus*	Asteraceae	Surjomukhi	1
23	*Heliotropium indicum*	Boraginaceae	Hatisur	1
24	*Hemidesmus indicus*	Asclepiadaceae	Ananatamul	1
25	*Holarrhena pubescens*	Apocynaceae	Kurchi	1
26	*Hydrilla verticillata*	Hydrocharitaceae	Hydrilla	2
27	*Ixora coccinea*	Rubiaceae	Rangan	1
28	*Jatropha gossypifolia*	Euphorbiaceae	Bherenda	1
29	*Justicia adhatoda*	Acanthaceae	Basak	1
30	*Leonurus sibiricus*	Lamiaceae	Raktadron	1
31	*Mentha spicata*	Lamiaceae	Pudina	1
32	*Mimosa pudica*	Fabaceae	Lajabati	1

33	*Nerium indicum*	Apocynaceae	Korobi	1
34	*Nymphaea rubra*	Nymphaeaceae	Lal Shaluk	2
35	*Ocimum basilicum*	Lamiaceae	Babui Tulsi	2
36	*Ocimum gratissimu*m	Lamiaceae	Ram Tulsi	2
37	*Paederia scandens*	Rubiaceae	Gandal	2
38	*Papaver somniferum*	Papaveraceae	Posto	2
39	*Piper nigrum*	Piperaceae	Golmorich/Black Pepper	2
40	*Plantago ovata*	Plantaginaceae	Isabgol	2
41	*Plumbago zeylanica*	Plumbaginaceae	Lalchita	2
42	*Psoralea corylifolia*	Fabaceae	Babchi	2
43	*Rauvolfia serpentina*	Apocynaceae	Sarpagandha	2
44	*Ravenala madagascariensis*	Musaceae	Panthapadap/ Traveller's Palm	1
45	*Rhoeo discolor*	Commelinaceae	Rhoeo	2
46	*Rivina humilis*	Petiveriaceae	Lal Jhanti	1
47	*Selaginella* sp.	Sellaginaceae	Selaginella	1
48	*Setcreasea Purpurea*	Commelinaceae	Setcreasea	1
49	*Solanum torvum*	Solanaceae	Bon-Begun	1
50	*Stevia rebaudiana*	Astearceae	Mistipata	2
51	*Tinospora cordifolia*	Menispermaceae	Guloncha	1
52	*Tylophora indica*	Asclepiadaceae	Antamul	1
53	*Uraria picta*	Fabaceae	Sankarjata	2
54	*Vitex negundo*	Verbenaceae	Nishinda	1
55	*Withania somnifera*	Solanaceae	Ashwagandha	2
56	*Zamia furfuracea*	Zamiaceae	Zamia	1
57	*Zea mays*	Poaceae	Bhutta	2
58	Bombax ceiba	Malvaceae	Simul	1
59	Delonix regia	Fabaceae	Gulmohur	1
60	Mimusops elengi	Sapotaceae	Bokul	1
61	Polyalthia logifolia	Annonaceae	Debdaru	6

Aloe barbadensis

Clitoria ternatea

Gymnema sylvestre

Mentha spicata

Plumbago zeylanica

Tinospora cordifolia

Polyalthia logifolia

Mimusops elengi

Stevia rebaudiana

Green Practices

"Going **green**" means to pursue knowledge and **practices** that can lead to more environmentally friendly and ecologically responsible decisions and lifestyles, which can help protect the environment and sustain its natural resources for current and future generations. Green Practice includes

1. **Green purchasing**
2. **Green transportation**
3. **Campaign for Go Green**
4. **Green Policy**

Green Practice Audit

Control objective	Control(s)	Audit Observation
Ensure that improvements, purchases and developments are environmentally sound	Seek and act upon professional advice in order to minimize the adverse environmental impact of any new developments and exceed government regulatory requirements. This includes efficient heating and water systems, appropriate space for recycling, and the use of recycled and/or sustainable building materials where possible.	The college has contacted and acts upon professional advice in order to minimize the adverse environmental impact of any new developments and Government regulatory requirements.
	Purchase efficient and environmentally sound appliances	College is positive about increasing greenery by planting in front of the college and maintaining potted plants scientifically as much as possible.
	Purchase food that has been produced and delivered with minimal impact on the environment, this includes buying locally produced, organic and free range food wherever possible.	No, college does not purchase food stuff as the canteen facility is available from 10 am to 5 pm on all working days.
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 with good surface transport. Faculty members, Office staff and students are attending the college by public transport or by own transport like motor cycle etc. A well maintained parking

		place is available for the two wheelers and four wheelers.
	Reduce the proportion of travel on College business carried out in private transport and eliminate unnecessary and inefficient use of college vehicles	No, college has no vehicle. College uses hired vehicle whenever it is required. Most of the time use Public transport for official works.
	Promote car sharing / car pool among the students and faculty members	Both students and faculty members use either public transport and very less own vehicle.
Minimize the use of chemical pollutants	Ensure that all cleaning products used by college 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 washing liquids are used in the college and all the toilet cleaners are Eco friendly.
	Reduce the practice of burning Plastic and other material that emits harmful gas on burning is prevented in the campus.	The college is plastic free zone. Single use plastic was banned in the campus ever since November, 2021.
	Establish a Garden in the campus.	The college has already maintained garden of 1200 sft (approx) and 57 types of plants are there.
	Minimize the use of fertilizers and pesticides in college grounds, opting for the use of compost produced on site wherever possible.	Negligible amount of fertilizers and pesticides are used in the college.
	Encourage the faculties and students to plant trees in the garden.	Faculty members and students know the importance of the tree plantation.
	Reviews periodically the list of trees planted in the garden.	Such review is conducted on frequent basis.
	Conduct environmental	The College regularly

	awareness workshops as a part of the program.	organizes camps, seminar, and workshops.
Ensure that environmental awareness is created	Conduct events such as plant trees to spread environmental awareness among the students	The different groups of College students usually do that.
	Create awareness of environmental sustainability and takes actions to ensure environmental sustainability.	Seminars and awareness programmes are conducted on Nature and natural resources, wildlife for the Conservation of Biodiversity.
	Reduce the rate of contributes to the depletion and degradation of natural resources	College does not directly or indirectly involve 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	As per UGC guidelines the subject Environmental Studies is introduced in the curriculum of all the streams. Under this curriculum, students have to appear the examination at the end of 1st semester for two academic credit points.
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.	The college buildings are more than 50 years old and follow the standards of architecture. The college is a septuagenarian institution, having the main building built back in 1948.
Ensure that the Environmental Policy is enacted, enforced and reviewed	Establish a College 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.	The college has Nature and Nurture Club which looks after the Environment Protection and Campus Beautification. The club also regularly monitors and advocates for environment protection measures and development of green area.

	Ensure that on the Nature Club there will be appropriate representatives of the relevant college departments and authorities – such as catering, gardening, maintenance, cleaning and finance	The college has its Nature Club comprising the staff and students of different departments.
	Ensure that on the Environmental Committee there will be the Green Officer from an external agency who is engaged in the profession of providing guidance on environmental impact	The college has no such Green Officer.
	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 Protection Committee reviews the policy periodically.
	Ensure that the Environmental Policy is enforced regardless of whether its requirements exceed the mandate of the law	Environmental policy of the College: "No to water & Electricity misuse; Optimal waste management".
	Require that every staff and student member recognizes their responsibility to ensure that the commitments in the Environmental Policy are properly put into practice	Every staff and student member recognizes their responsibility to ensure their commitments to the Environment.
	Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings	Green audit is conducted annually.

Recommendations

- The Environmental Protection Committee should be empowered to look after allthe green practices in the college
- More Seminar/ workshop should be organized to create the awareness of Environmental conservation among the students and other stake holders**.**

Green Campus of Rishi Bankim Chandra College

Conclusion

Considering the fact that the institution is predominantly an under-graduate college, there is significant concern over the environmental conservation both by faculty and students. The environmental awareness initiatives are substantial. The efforts towards paperless work system are noteworthy. Besides, environmental awareness programmes initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of waste management using Eco-friendly and scientific techniques. This may lead to a prosperous future in the context of Green Campus and thus sustainable environment and community development.

As part of green audit of the campus, we also carried out the environmental monitoring of campus which includes illumination, Noise level, and Ventilation and Indoor Air quality of the class room. It was observed that illumination and Ventilation is adequate considering natural light and air velocity present. Noise level in the campus is below 50 dB at day time which is well within the limit.

GREEN AUDIT REPORT
2019-20

Rishi Bankim Chandra College

Naihati, 24 Parganas (North), West Bengal

Conducted by:

Dr Indranil Ghosh

Environmental Auditor

Ref: GA/RBC/2019-20/02

CERTIFICATE

This is to certify that Rishi Bankim Chandra College, Naihati, West Bengal has conducted detailed Environmental Green Audit for 2019-20 Academic year for their campus and submitted necessary data and credentials for scrutiny. The activity and measure carried out by the college and was found satisfactory. The efforts taken by the students, faculty members and the college authority towards Environment and Sustainability is Highly Appreciated and commendable.

Dr Indranil Ghosh

Environmental Auditor

Executive Summary

In accordance with the Environmental policy of Rishi Bankim Chandra College, the green audit for 2019- 20 was conducted on 25th November, 2020.

The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the standard Green Policy adopted by different academic institution and the college itself. 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 as the degree to which the College is in compliance with the applicable regulations, policies and standards.

During the initial planning of the audit, an analysis was conducted in order to identify, predict, evaluateand prioritize the parameters associated with the environmental sustainability. 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 System (EMS) in the campus. The criteria and methods used in the auditwere based on the identified impacts. The methodology used included physical/remote inspection of the campus, review of the relevant documentation and interviews.

Acknowledgement

We would like to thank Prof Dr. Sanjib Kumar Saha, Principal of Rishi Bankim Chandra College for his consent to conduct this audit. We would like to sincerely thank all the Departments, students, teaching and non-teaching staff for their kind cooperation with us during this survey.
We would also like to express our special thanks to Prof Dr. Mainak Roy, Coordinator, IQAC for his dedicated and sincere effort to make the report complete.

Assurance

This audit has been conducted in accordance with the *International Standards for the Professional Practice of Auditing*.

In our professional judgment, sufficient 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.

Introduction

Green Audit can be defined as a systematic, documented, periodic and objective review by regulated entities of facility operations and practices related to meeting the environmental requirements. The "Green Audit" aims to analyze environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. It was initiated with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment as whole. Through Green Audit, one gets a direction as to how to improve the condition of environment. There are various factors that have determined the growth of carrying out Green Audit.

There is a relationship between Green Audit and Sustainable Development of any organization.The primary need for achieving the sustainable development of any organization is to determine the Green Audit policy, Green Audit Framework, Accurate implementation, and result analysis of it. Strong Green Audit process can help to achieve the sustainability. Green Audit framework helps to achieve the goal set by an organization. Green Audit is linked to Sustainable development process. Green Audit and sustainable development process help to reduce the wastage and associated cost as well as increases the product quality.

Green audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India which declares the institutions as Grade A, B or C according to the scores assigned during the accreditation.

About the College

Rishi Bankim Chandra College is a multi-faculty (Arts, Science and Commerce faculties) co-education College, offering Honours & General and PG Courses affiliated to the West Bengal State University.

In June 1948, the college was shifted to its present premises. It comprises integrated college buildings on two adjacent plots on 1.3 acre and a large playground with gallery-shed on fully walled and high-fenced 3.5-acre of land. The college is located near Rishi Bankim Chandra's ancestral home at East Kantalpara, forty three kilometers north of Kolkata, on the eastern bank of River Hooghly, and is well connected by roads, Kalyani Expressway and the Railways. The nearest Railhead is Naihati under Sealdah North Division of Eastern Railways. A four-storied building, State-of-art Diamond Jubilee Block was inaugurated on 15th January

2011. It presently houses 2 post-graduate (P.G.) and 5 under graduate (U.G.) departments of the college. A three-storied Students' Amenities Block houses the Students' Canteen on Ground floor and Union rooms on 1st Floor was inaugurated in 2006, the 2nd floor was completed in 2019 with a Seminar Hall. A two-storied building was also added for infrastructural expansion in 2019.

The campus is located 43 km away from Kolkata. The nearest Railway Station Sealdah is 37 km and Netaji Subhas Intenational airport, Kolkata is 32 KM away from here respectively. Naihati is located at 22.9°N 88.42°E. It has an average elevation of 15 metres.

Naihati is bounded by Garifa, Halisahar and Balibhara on the north, Ramghat, Saheb Colony, Indira Nagar, Rajendrapur, Mamudpur and Dogachhia on the east, Bhatpara and Madral on the south, and the Hooghly on the west. Although not specifically spelled out, it is evident that localities such as Garifa, Kultala, Bibeksarani, Bijaynagar, Nimbagan and Fingapara are neighbourhoods in Naihati, though some consider them to a part of Naihati.

The main road is around 5-10 meter away from the college buildings. The Hukum Chand Jute Mill is located in the 5 km radius of the college campus.

The college has only one shift and starts from 10:30 am and closes at 4:30 pm. Total 3816 students are studying in different under graduate programs viz BSc, B Com and BA (Hons) and (Gen) and also in two PG programs viz. in English and Zoology.

The college is desirous to adopt the "Green Campus" system for environmental conservation andsustainability. There are three main pillars i.e.

- Zero environmental foot print
- Positive impact on occupational health performance
- 100% graduates demonstrating environmental literacy.

The goal is to reduce CO_2 emission, energy and water use, while creating an atmosphere where students can learn and be healthy. The college administration works on the several factors of "Green Campus" including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity.

Objectives of the Study

The main objective of the green audit is to promote the Environment Management and conservation in the College Campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

1. Verifying compliance: Verifying compliance with standards or best available techniques.
2. Identifying problems: Detecting any leakage, spills or other such problems with the operations and processes.
3. Formulating environmental policy: Formulating the organization's environmental policy if there is no existing policy.
4. Measuring environmental impact: Measuring the environmental impact of each and every process and operation on the air, water, soil, worker health and safety and society at large.
5. Measuring performance: Measuring the environmental performance of an organization against bestpractices.
6. Confirming environmental management system effectiveness: Giving an indication of theeffectiveness of the system and suggestions for improvement.
7. Providing a database: Providing a database for corrective action and future plans.
8. Developing the organization's environmental strategy: Enabling management to develop itsenvironmental strategy for moving towards a greener corporate and performance culture.
9. Communication: Communicating its environmental performance to its stakeholder's through reporting which will enhance the image of the organization.

General steps of Audit

1. Systematic and comprehensive data collection
2. Documentation with physical evidences
3. Independent periodic evaluation with regulatory requirements and appropriate standards
4. Systematic and comprehensive improvement and management of existing system.

The audit process

- **Pre-audit activities**

The pre-audit activities include the following:

1. The sites / area /division that are to be audited need to be determined and selected.
2. The Audit Team was informed on the date of the audit which enabled them to adjust and become used to the concept.
3. The audit scopes were identified. Audit Team was consulted when establishing the scope.
4. The audit plan was designed in such a way that it accommodated changes based on information gathered during the audit and effective use of resources.
5. Audit team and assignment of responsibility were established.
6. The required working papers were collected. This facilitated the investigations of audit team on the sites.
7. The background information on the facility including the facility organization, layout and processes, and the relevant regulations and standards, were collected.
8. The background information on the site's historical uses, and the location of soil and ground water contamination were collected.
9. The pre-audit questionnaire was informed to auditee.

- **Onsite audit activities**

The onsite audit includes:

1. The opening meeting is the first step between the audit team and college authority. Inthis meeting the purpose of audit, the procedure and the time schedule were discussed.
2. Site inspection is the second step for onsite activity. In this step the audit team discovered matters which are important to the audit but which were not identified at the planning stage.
3. Onsite phase of the audit developed a working understanding of how the facility manages the activities that influence the environment and how any EMS, if there is one, works.
4. Assessed strengths and weaknesses, controls and risks associated with their failure were established.
5. Gathering audit evidence ie, collecting data and information using audit protocol.
6. Communicated with the Audit Team to obtain most information.
7. Evaluated the audit evidence against the objectives established for the audit.
8. An exit meeting to explain the audit findings.

Methodology

In order to perform green audit, the methodology included different tools such as preparation of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. The study covered the following areas to summarize the present status of environment management in the campus:

- Water management
- Energy Conservation
- Waste management
- E-waste management
- Green area management
- Green Practices

View of Naihati

Rishi Bankim Chandra College, Naihati

Water Audit

Evaluating the facility of raw water intake and determining the facilities for water treatment. Water harvesting is the best technique that can be adopted by simply storing water and using it at the time of scarcity.

Water Use

This indicator addresses water consumption, water sources, irrigation, storm water, appliances and fixtures. A water audit is an on-site survey and assessment to determine the water use and hence improving the efficiency of its use.

Observations

The study observed that natural spring is major source of supply of water. Water is used for drinking purpose, toilets, laboratory and gardening. During the survey, no loss of water is observed, neither by any leakages nor by over flow of water from overhead tanks. However, during Monsoon season very less amount of overflow takes place through drains. The data collected from all the departments is examined and verified. On an average the total use of water in the college is 600 L/day which include domestic purposes, gardening and for different laboratories [the college was closed due to lock down to prevent the COVID 19 outbreak].

The work on rain water harvesting is under process. There is rain water storage unit in the Diamond Jubilee block, at the eastern side of the main campus, which was constructed XI plan grant. It was inaugurated in September 2016.

Recommendations

- Need of monitoring, controlling overflow is essential and periodically supervision drills should be arranged. In campus small scale/medium scale/large scale reuse and recycle of water system is necessary.
- Minimize wastage of water and use of electricity during water filtration process, if used.
- Ensure that all cleaning products used by college 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.

Audit Framework and detailed findings: Water management

Control objective	Control(s)	Audit Observation
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 done to control water wastage.
	Install appliances which reduce water consumption	Practiced as much as possible.
	Encourage a decrease in water usage among staff, students and conference guests	College does encourage a decrease in water usage among staff, students and conference guests. The water consumption is minimal.
	Purchase the most efficient washing machines and dishwashers available which have an economy setting as default	These are not required by the college.
	Use an efficient and hygienic water storage mechanism to minimize the loss of water during storage	The college cleans the reservoirs in regular intervals (twice a year) .
	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	The college has RO to filtrate the water.
	Install Water recycling mechanism, such as rain water harvesting system	The college has Rain water Storage system.

Energy Audit

It deals with the energy conservation and methods to reduce the consumption and the related pollution.

Energy Conservation

This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliance, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment.

Observations

Total energy consumption is determined as 1100 KWH/Year by major energy consuming equipment. All the departments and common facility centers are equipped with LED lamps. Approximately 51 LED bulbs are counted during survey. The college has 32 Air conditioning machines. Equipment like Computers (161 nos with TFT monitors and 06 laptops) and printers (22) are used with power saving mode. The college conducts the switch off drills at regular intervals. In the laboratories the switch is shut down after occupancy time and is one of the green practices for energy conservation [the college was closed due to lock down to prevent the COVID 19 outbreak].

Recommendations

- 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.
- Appreciate that it is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity.
- Installation of more LED lamps instead of CFL.

Audit Framework and detailed findings: Energy management

Control objective	Control(s)	Audit Observation
	Support renewable and carbon-neutral electricity Optionson any energy-purchasing consortium, with the aim of supplying all college properties with electricity that can be attributed to renewable and carbon-neutral sources.	No, the college does not have any choice of 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.
Reduce energy consumption, especially of energy derived from fossil fuels	Appreciate that it is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity	The College have no choice other than *WEST BENGALSTATE ELECTRICITY DISTRIBUTION COMPANY LIMITED.* The company is a PSU of Govt of West Bengal. The company which invests Roof top Solar PV systems.
	Look in to the possibility of on-site micro-generation of renewable electricity.	The College has no Solar panel for the supply of renewable energy.
	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 as much as practicable.
	Provide energy efficient heating systems, with adjustable controls for individual heating appliances wherever possible, and ensure that comprehensible instructions are available to staff and students on the use of heating controls.	No Room Heaters are used in winter season.

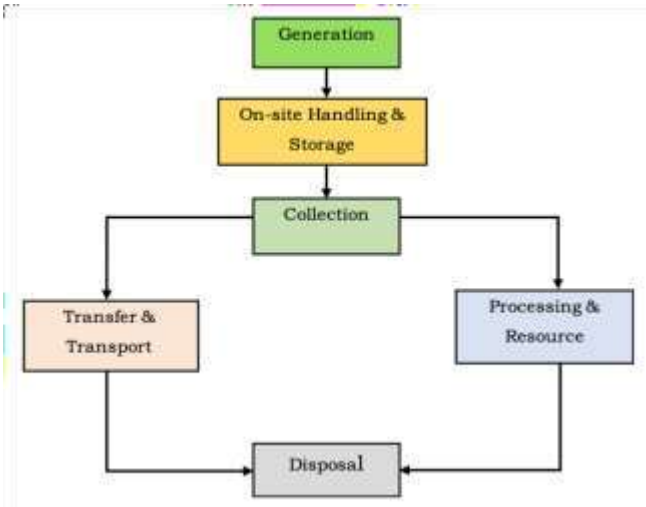
	Encourage staff, students and conference guests to save energy through visible reminders, incentives and information to increase awareness. This particularly concerns turning off electrical appliances when not in use in both communal and residential rooms	Misuse of electricity is controlled by turning off the appliances when not required. Visible reminders are placed above every switch to turn off lights when not in use.
	Monitor and understand the importance of different sources of college energy consumption, and set appropriate and measurable targets for a reduction in certain areas of consumption and/or in the overall consumption of energy.	Disconnect the supply ofelectricity when notrequired.(Specially during the month long winter vacation).
	Conduct switch off drills at regular intervals	College conducts switch off drills at regular intervals.
	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	All electronic and electricalequipment are switched offwhen not in use. Equipment are configured in power saving mode when such option is available.
	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	Equipment are running on standby mode.

Waste Management Audit

This indicator addresses waste production and disposal of different wastes like paper, food, plastic, biodegradable, construction, glass, dust etc. and recycling. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair, and reuse. Solid waste generation and management is a burning issue. Unscientific handling of solid waste can create threat to everyone. The survey focused on volume, type and current management practice of solid waste generated in the campus. The different solid wastes collected are as mentioned above.

Waste Conservation

Good waste management does more than just clean up the environment – it can also provide diverse benefits for communities that engage in waste management activities.
The broader challenge towards the waste management is to develop local/institutional waste management strategies and to embed local processes to ensure sustainability.



Observations

The total solid waste collected in the campus is 02 Kg/day. Waste generation from tree droppings and lawn management is a major solid waste generated in the campus. The waste is segregated at source by providing separate recycle bins for Bio-degradable (Green colored bins) and Plastic waste (Blue colored bins). Single sided used papers reused for writing and printing in offices and all departments. Unimportant and non-confidential reports/ papers are sent for pulping and recycling after completion of their preservation period. Very less plastic waste (0.05 Kg/day) is generated by some departments, office; garden etc. Metal waste waste is stored and given to authorized scrap agents for further processing. Few glass bottles are reused. The college has practice of paperless office work in administration as much as possible and as a result there is less carbon emission from printers, no carbon copy of bills, filing of cartridge outside the office (if necessary) is observed [the college was closed due to lock down to prevent the COVID 19 outbreak].

The use of single-use plastic carry bags (having thickness less than 5 micron), plastic flags, cups, plates etc are completely banned inside the college campus .

Solid waste from canteen like food wastes are stored in bins and later deposited in pits; these wastes and vegetable wastes are collected into pits for making compost. This compost is utilized in college gardens; liquid wastes are disposed carefully through well drainage system.

Recommendations

- Reduce the absolute amount of waste that is produced from college staff offices.
- Make full use of all recycling facilities provided by the local authority and private suppliers, including glass, cans, plastic bottles, batteries, print cartridges, cardboard and furniture.
- Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated.
- Single sided papers to be used for writing and photocopy.

Audit Framework and detailed findings: Waste Management

Control objective	Control(s)	Audit Observation
Maximizethe proportionof waste that isrecycled & minimize the quantity of non-recyclable refuse	Reduce the absolute amount of waste that is produced from college staff offices.	The college has to a certain level controlled the amount of waste that it produces from staff offices.
	Make full use of all recycling facilitiesprovided by Municipality and private suppliers, including glass, cans, plastic bottles, batteries, print cartridge, cardboard and furniture.	Yes. College uses the facilities provided by the local authority to recycle the wastes.
	Compost, or cause to be composted, allorganic waste, green waste and un-recycled cardboard produced in or collected from kitchens, gardens, offices and rooms.	College has waste composting facility.
	Recycle or safely dispose of white goods, computers and electrical appliances.	Safe disposal through authorized agents for computers and electrical wastes.

	Use reusable resources and containers and avoid unnecessary packaging where possible	College tries to use reusable resources and avoid unnecessary packaging where possible
	Always purchase recycled resourceswhere these are both suitable and available.	College tries to purchase recycled resources where these are both suitable and available.
	Provide sufficient, accessible and well- publicized collection points for recyclable waste, with responsibility for recycling clearly allocated	Yes. College has sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated
	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	Yes! College arranged the events withleast production of waste.
	Promote reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives	Yes!, the college has promoted reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives
	Promote reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives	Yes, the college dispose all waste, whether solid or otherwise, in a scientific manner and ensure that it is not released directly to the environment.
	Adoption of paperless office to reduce waste.	Yes! College has implemented paper less office partially.

E-waste Management Audit

E-waste can be described as electronic equipment that is near or at the end of its useful life. E-waste makes up about 5% of all municipal solid waste worldwide but is much more hazardous thanother waste because electronic components contain cadmium, lead, mercury, and Polychlorinated biphenyls (PCBs) that can damage human health and the environment.

E-waste Management System

Electronic waste or e-waste is generated when electronic and electrical equipment become unfit for their originally intended use or have crossed the expiry date. Computers, servers, mainframes, monitors, compact discs (CDs), printers, scanners, copiers, calculators, fax machines, battery cells, cellular phones, transceivers, TVs, iPods, medical apparatus, washing machines, refrigerators, and air conditioners are examples of e-waste (when unfit for use).

E-waste typically consists of metals, plastics, cathode ray tubes (CRTs), printed circuit boards, cables, and so on. Valuable metals such as copper, silver, gold, and platinum could be recovered from e-wastes, if they are scientifically processed. The presence of toxic substances such as liquid crystal, lithium, mercury, nickel, polychlorinated biphenyls (PCBs), selenium, arsenic, barium, brominated flame retardants, cadmium, chrome, cobalt, copper, and lead, makes it very hazardous, if e-waste is dismantled and processed in a crude manner with rudimentary techniques. E-waste poses a huge risk to humans, animals, and the environment. The presence of heavy metals and highly toxic substances such as mercury, lead, beryllium, and cadmium pose a significant threat to the environment even in minute quantities.

Consumers are the key to better management of e-waste. Initiatives such as Extended Producer Responsibility (EPR); Design for Environment (DfE); Reduce, Reuse, Recycle (3Rs), technology platform for linking the market facilitating a circular economy aim to encourage consumers to correctly dispose their e-waste, with increased reuse and recycling rates, and adopt sustainable consumer habits.

Observation

E-waste generated in the college is very less. It is handled, treated and disposed in scientific way. There are 161 computers (with TFT monitors), 22 printers and 02 photo copier and 04 projectors are available in the college. The college generates some e-waste like chips, bulbs, circuit boards, mother boards, computers, batteries, relays, and switches. The non-working computers, spare parts and other non-working electrical equipment are stored in separate places. The college has intention to adopt the Buyback policy. Average E-waste handled is 12 kg (approx) in last year and disposed off through authorized vendors.

Recommendations

- Recycle or safely dispose of white goods, computers and electrical appliances.
- Use reusable resources and containers and avoid unnecessary packaging where possible. Always purchase recycled resources where these are both suitable and available.

Audit Framework and detailed findings: E Waste Management

Control objective	Control(s)	Audit Observation
Reduce the E waste generation	Adoption of Extended Producer Responsibility (EPR), Design for Environment (DfE); Reduce, Reuse, Recycle (3Rs). The EPR is an environment protection strategy that makes the producer responsible for the entire life cycle of the product, especially for take back, recycle and final disposal of the product.	College has no specific policy for E waste management. Time to time E waste are sold out to selected vendors who can possible reuse some components and effectively dispose the rest.

Green area Management Audit

This includes the plants, greenery and sustainability of the campus to ensure that the buildings conform to green standards. This also helps in ensuring that the Environmental Policy is enacted, enforced and reviewed using various environmental awareness programs.

Green Area

Green spaces are important reservoirs of biodiversity, providing resources, ecosystem services and habitats for species of interest, improving functional and structural connectivity at the urban level.

Observations

There are 3140 sqft land which is available as green area. Campus is located in the vicinity of different types of species of plants. The campus is enriched by different bio diversities like bryophytes, pteridophytes, arthropod, mollusca and reptiles. Various tree plantation programs are being organized at college campus. This program helps in encouraging eco-friendly environment which provides pure oxygen within the institute and awareness among local people. The plantation program includes various types of indigenous species of ornamental and medicinal wild plant species. There is garden which is maintained by the gardener. The NSS unit of the college and the members of Nature club of the college also look after the college greenery. The college has taxonomically identified all the plants available in the campus.

There is a college beatification subcommittee as well to look after and plan for greening of the campus.

Recommendations

- Promote environmental awareness as a part of course work in various curricular areas, independent research projects, and community service.
- Create awareness of environmental sustainability and take action to ensure environmental sustainability.
- Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings.

Audit Framework and detailed findings: Green Area Management

Control objective	Control(s)	Audit Observation
Development of green area tocompensate CO_2.	Proper Land use pattern to develop green area.	No. There is no proper land use policy of the college.
	Proper Taxonomical identification of plants in the campus.	The plants inside the campusis identified and marked properly.
	Conduct Environmen tAwareness program.	Environment Awareness program i s regularly organizedby the college authority.

Taxonomical identification of plants in the campus

	Scientific name	Family	Local name	Number of plants
1	*Aloe barbadensis*	Liliaceae	Grithakumari	2
2	*Andrographis paniculata*	Acanthaceae	Kalmegh	2
3	*Asparagus officinalis*	Asparagaceae	Satamuli	1
4	*Azadirachta indica*	Meliaceae	Neem	1
5	*Bacopa monnieria*	Scrophulariaceae	Brahmi	1
6	*Boerrahavia repens*	Nyctaginaceae	Punarnaba	1
7	*Calotropis gigantea*	Asclepiadaceae	Akanda	1
8	*Catharanthus roseus*	Apocynaceae	Nayantara	2
9	*Centella asiatica*	Apiaceae	Thankuni	1
10	*Cissus quadrangularis*	Euphorbiaceae	Harjora	1
11	*Clitoria ternatea*	Fabaceae	Aparajita	1
12	*Crotalaria pallida*	Fabaceae	Atosi	1
13	*Cycas circinalis*	Cycaceae	Cycas Male	1
14	*Cycas circinalis*	Cycaceae	Cycas Female	1
15	*Cymbopogon sp.*	Poaceae	Citronella	1
16	*Datura metel*	Solanaceae	Dhutra	1
17	*Digitalis purpurea*	Plantaginaceae	Purple foxglove	1
18	*Dracaena sp.*	Asparagaceae	Dracaena	1
19	*Eclipta prostrata*	Asteraceae	Kesuth	1
20	*Glycyrrhiza glabra*	Fabaceae	Jastimadhu	2
21	*Gymnema sylvestre*	Asclepiadaceae	Gurmar	1
22	*Helianthus annus*	Asteraceae	Surjomukhi	1
23	*Heliotropium indicum*	Boraginaceae	Hatisur	1
24	*Hemidesmus indicus*	Asclepiadaceae	Ananatamul	1
25	*Holarrhena pubescens*	Apocynaceae	Kurchi	1
26	*Hydrilla verticillata*	Hydrocharitaceae	Hydrilla	2
27	*Ixora coccinea*	Rubiaceae	Rangan	1
28	*Jatropha gossypifolia*	Euphorbiaceae	Bherenda	1
29	*Justicia adhatoda*	Acanthaceae	Basak	1
30	*Leonurus sibiricus*	Lamiaceae	Raktadron	1
31	*Mentha spicata*	Lamiaceae	Pudina	1
32	*Mimosa pudica*	Fabaceae	Lajabati	1

33	*Nerium indicum*	Apocynaceae	Korobi	1
34	*Nymphaea rubra*	Nymphaeaceae	Lal Shaluk	2
35	*Ocimum basilicum*	Lamiaceae	Babui Tulsi	2
36	*Ocimum gratissimu*m	Lamiaceae	Ram Tulsi	2
37	*Paederia scandens*	Rubiaceae	Gandal	2
38	*Papaver somniferum*	Papaveraceae	Posto	2
39	*Piper nigrum*	Piperaceae	Golmorich/Black Pepper	2
40	*Plantago ovata*	Plantaginaceae	Isabgol	2
41	*Plumbago zeylanica*	Plumbaginaceae	Lalchita	2
42	*Psoralea corylifolia*	Fabaceae	Babchi	2
43	*Rauvolfia serpentina*	Apocynaceae	Sarpagandha	2
44	*Ravenala madagascariensis*	Musaceae	Panthapadap/ Traveller's Palm	1
45	*Rhoeo discolor*	Commelinaceae	Rhoeo	2
46	*Rivina humilis*	Petiveriaceae	Lal Jhanti	1
47	*Selaginella* sp.	Sellaginaceae	Selaginella	1
48	*Setcreasea Purpurea*	Commelinaceae	Setcreasea	1
49	*Solanum torvum*	Solanaceae	Bon-Begun	1
50	*Stevia rebaudiana*	Astearceae	Mistipata	2
51	*Tinospora cordifolia*	Menispermaceae	Guloncha	1
52	*Tylophora indica*	Asclepiadaceae	Antamul	1
53	*Uraria picta*	Fabaceae	Sankarjata	2
54	*Vitex negundo*	Verbenaceae	Nishinda	1
55	*Withania somnifera*	Solanaceae	Ashwagandha	2
56	*Zamia furfuracea*	Zamiaceae	Zamia	1
57	*Zea mays*	Poaceae	Bhutta	2
58	Bombax ceiba	Malvaceae	Simul	1
59	Delonix regia	Fabaceae	Gulmohur	1
60	Mimusops elengi	Sapotaceae	Bokul	1
61	Polyalthia logifolia	Annonaceae	Debdaru	6

 *Andrographis paniculata*	 *Catharanthus roseus*	 *Cymbopogon sp.*
 *Helianthus annus*	 *Justicia adhatoda*	 *Ocimum gratissimu*m
 *Rauvolfia serpentine*	 *Tylophora indica*	 Delonix regia
 *Centella asiatica*	 *Datura metel*	 *Heliotropium indicum*

Green Practices

"Going **green**" means to pursue knowledge and **practices** that can lead to more environmentally friendly and ecologically responsible decisions and lifestyles, which can help protect the environment and sustain its natural resources for current and future generations. Green Practice includes

1. **Green purchasing**
2. **Green transportation**
3. **Campaign for Go Green**
4. **Green Policy**

Green Practice Audit

Control objective	Control(s)	Audit Observation
Ensure that improvements, purchases and developments are environmentally sound	Seek and act upon professional advice in order to minimize the adverse environmental impact of any new developments and exceed government regulatory requirements. This includes efficient heating and water systems, appropriate space for recycling, and the use of recycled and/or sustainable building materials where possible.	The college has contacted and acts upon professional advice in order to minimize the adverse environmental impact of any new developments and Government regulatory requirements.
	Purchase efficient and environmentally sound appliances	College is positive about increasing greenery by planting in front of the college and maintaining potted plants scientifically as much as possible.
	Purchase food that has been produced and delivered with minimal impact on the environment, this includes buying locally produced, organic and free range food wherever possible.	No, college does not purchase food stuff as the canteen facility is available from 10 am to 5 pm on all working days.
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 with good surface transport. Faculty members, Office staff and students are attending the college by public transport or by own transport like motor cycle etc. A well maintained parking

		place is available for the two wheelers and four wheelers.
	Reduce the proportion of travel on College business carried out in private transport and eliminate unnecessary and inefficient use of college vehicles	No, college has no vehicle. College uses hired vehicle whenever it is required. Most of the time use Public transport for official works.
	Promote car sharing / car pool among the students and faculty members	Both students and faculty members use either public transport and very less own vehicle.
Minimize the use of chemical pollutants	Ensure that all cleaning products used by college 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 washing liquids are used in the college and all the toilet cleaners are Eco friendly.
	Reduce the practice of burning Plastic and other material that emits harmful gas on burning is prevented in the campus.	The college is plastic free zone. Single use plastic was banned in the campus ever since November, 2021.
	Establish a Garden in the campus.	The college has already maintained garden of 1200 sft (approx) and 57 types of plants are there.
	Minimize the use of fertilizers and pesticides in college grounds, opting for the use of compost produced on site wherever possible.	Negligible amount of fertilizers and pesticides are used in the college.
	Encourage the faculties and students to plant trees in the garden.	Faculty members and students know the importance of the tree plantation.
	Reviews periodically the list of trees planted in the garden.	Such review is conducted on frequent basis.
	Conduct environmental	The College regularly

	awareness workshops as a part of the program.	organizes camps, seminar, and workshops.
Ensure that environmentalawareness is created	Conduct events such as plant trees to spread environmental awareness among the students	The different groups of Collegestudents usually do that.
	Create awareness of environmental sustainability and takes actions to ensure environmental sustainability.	Seminars and awareness programmes are conducted on Nature and natural resources, wildlife for the Conservation of Biodiversity.
	Reduce the rate of contributes to the depletion and degradation of natural resources	College does not directly or indirectly involve 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	As per UGC guidelines the subject Environmental Studies is introduced in the curriculum of all the streams. Under this curriculum, students have to appear the examination at the end of 1st semester for two academic credit points.
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 suchbuildings, offering greatest efficiency for energy and water usage, and reducing carbon emission.	The college buildings are more than 50 years old and follow the standards of architecture. The college is a septuagenarian institution, having the main building built back in 1948.
Ensure that the Environmental Policy is enacted, enforced and reviewed	Establish a College 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.	The college has Nature and Nurture Club which looks after the Environment Protection and Campus Beautification. The club also regularly monitors and advocates for environment protection measures and development of green area.

	Ensure that on the Nature Club there will be appropriate representatives of the relevant college departments and authorities – such as catering, gardening, maintenance, cleaning and finance	The college has its Nature Club comprising the staff and students of different departments.
	Ensure that on the Environmental Committee there will be the Green Officer from an external agency who is engaged in the profession of providing guidance on environmental impact	The college has no such Green Officer.
	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 Protection Committee reviews the policy periodically.
	Ensure that the Environmental Policy is enforced regardless of whether its requirements exceed the mandate of the law	Environmental policy of the College: "No to water & Electricity misuse; Optimal waste management".
	Require that every staff and student member recognizes their responsibility to ensure that the commitments in the Environmental Policy are properly put into practice	Every staff and student member recognizes their responsibility to ensure their commitments to the Environment.
	Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings	Green audit is conducted annually.

Recommendations

- The Environmental Protection Committee should be empowered to look after allthe green practices in the college
- More Seminar/ workshop should be organized to create the awareness of Environmental conservation among the students and other stake holders**.**

Green Campus of Rishi Bankim Chandra College

Conclusion

Considering the fact that the institution is predominantly an under-graduate college, there is significant concern over the environmental conservation both by faculty and students. The environmental awareness initiatives are substantial. The efforts towards paperless work system are noteworthy. Besides, environmental awareness programmes initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of waste management using Eco-friendly and scientific techniques. This may lead to a prosperous future in the context of Green Campus and thus sustainable environment and community development.

As part of green audit of the campus, we also carried out the environmental monitoring of campus which includes illumination, Noise level, and Ventilation and Indoor Air quality of the class room. It was observed that illumination and Ventilation is adequate considering natural light and air velocity present. Noise level in the campus is below 50 dB at day time which is well within the limit.

GREEN AUDIT REPORT, 2018-19

Rishi Bankim Chandra College

Audited By:

Dr Indranil Ghosh

Ref: GA/RBC/2018-19/02

CERTIFICATE

This is to certify that Rishi Bankim Chandra College, Naihati, West Bengal has conducted detailed Environmental Green Audit for 2018-19 Academic year for their campus and submitted necessary data and credentials for scrutiny. The activity and measure carried out by the college and was found satisfactory. The efforts taken by the students, faculty members and the college authority towards Environment and Sustainability is Highly Appreciated and commendable.

Dr Indranil Ghosh

Environmental Auditor

Executive Summary

In accordance with the Environmental policy of Rishi Bankim Chandra College the green audit for 2018-19 academic year was conducted on 27th November, 2019.

The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the standard Green Policy adopted by different academic institution and the college itself. 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 as the degree to which the College is in compliance with the applicable regulations, policies and standards.

During the initial planning of the audit, an analysis was conducted in order to identify, predict, evaluate and prioritize the parameters associated with the environmental sustainability. 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 System (EMS) in the campus. The criteria and methods used in the audit were based on the identified impacts. The methodology used included physical/remote inspection of the campus, review of the relevant documentation and interviews.

Acknowledgement

We would like to thank Prof Dr. Sanjib Kumar Saha, Principal of Rishi Bankim Chandra College for his consent to conduct this audit. We would like to sincerely thank all the Departments, students, teaching and non-teaching staff for their kind cooperation with us during this survey.
We would also like to express our special thanks to Prof Dr. Mainak Roy, Coordinator, IQAC for his dedicated and sincere effort to make the report complete.

Assurance

This audit has been conducted in accordance with the *International Standards for the Professional Practice of Auditing*.

In our professional judgment, sufficient 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.

Introduction

Green Audit can be defined as a systematic, documented, periodic and objective review by regulated entities of facility operations and practices related to meeting the environmental requirements. The "Green Audit" aims to analyze environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. It was initiated with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment as whole. Through Green Audit, one gets a direction as to how to improve the condition of environment. There are various factors that have determined the growth of carrying out Green Audit.

There is a relationship between Green Audit and Sustainable Development of any organization.The primary need for achieving the sustainable development of any organization is to determine the Green Audit policy, Green Audit Framework, Accurate implementation, and result analysis of it. Strong Green Audit process can help to achieve the sustainability. Green Audit framework helps to achieve the goal set by an organization. Green Audit is linked to Sustainable development process. Green Audit and sustainable development process help to reduce the wastage and associated cost as well as increases the product quality.

Green audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India which declares the institutions as Grade A, B or C according to the scores assigned during the accreditation.

About the College

Rishi Bankim Chandra College is a multi-faculty (Arts, Science and Commerce faculties) co-education College, offering Honours & General and PG Courses affiliated to the West Bengal State University.

In June 1948, the college was shifted to its present premises. It comprises integrated college buildings on two adjacent plots on 1.3 acre and a large playground with gallery-shed on fully walled and high-fenced 3.5-acre of land. The college is located near Rishi Bankim Chandra's ancestral home at East Kantalpara, forty three kilometers north of Kolkata, on the eastern bank of River Hooghly, and is well connected by roads, Kalyani Expressway and the Railways. The nearest Railhead is Naihati under Sealdah North Division of Eastern Railways. A four-storied building, State-of-art Diamond Jubilee Block was inaugurated on 15th January

2011. It presently houses 2 post-graduate (P.G.) and 5 under graduate (U.G.) departments of the college. A three-storied Students' Amenities Block houses the Students' Canteen on Ground floor and Union rooms on 1st Floor was inaugurated in 2006, the 2nd floor was completed in 2019 with a Seminar Hall. A two-storied building was also added for infrastructural expansion in 2019.

The campus is located 43 km away from Kolkata. The nearest Railway Station Sealdah is 37 km and Netaji Subhas Intenational airport, Kolkata is 32 KM away from here respectively. Naihati is located at 22.9°N 88.42°E. It has an average elevation of 15 metres.

Naihati is bounded by Garifa, Halisahar and Balibhara on the north, Ramghat, Saheb Colony, Indira Nagar, Rajendrapur, Mamudpur and Dogachhia on the east, Bhatpara and Madral on the south, and the Hooghly on the west. Although not specifically spelled out, it is evident that localities such as Garifa, Kultala, Bibeksarani, Bijaynagar, Nimbagan and Fingapara are neighbourhoods in Naihati, though some consider them to a part of Naihati.

The main road is around 5-10 meter away from the college buildings. The Hukum Chand Jute Mill is located in the 5 km radius of the college campus.

The college has only one shift and starts from 10:30 am and closes at 4:30 pm. Total 2400 students are studying in different under graduate programs viz BSc, B Com and BA (Hons) and (Gen) and also in two PG programs viz. in English and Zoology.

The college is desirous to adopt the "Green Campus" system for environmental conservation andsustainability. There are three main pillars i.e.

- Zero environmental foot print
- Positive impact on occupational health performance
- 100% graduates demonstrating environmental literacy.

The goal is to reduce CO_2 emission, energy and water use, while creating an atmosphere where students can learn and be healthy. The college administration works on the several factors of "Green Campus" including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity.

Objectives of the Study

The main objective of the green audit is to promote the Environment Management and conservation in the College Campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

1. Verifying compliance: Verifying compliance with standards or best available techniques.
2. Identifying problems: Detecting any leakage, spills or other such problems with the operations and processes.
3. Formulating environmental policy: Formulating the organization's environmental policy if there is no existing policy.
4. Measuring environmental impact: Measuring the environmental impact of each and every process and operation on the air, water, soil, worker health and safety and society at large.
5. Measuring performance: Measuring the environmental performance of an organization against bestpractices.
6. Confirming environmental management system effectiveness: Giving an indication of theeffectiveness of the system and suggestions for improvement.
7. Providing a database: Providing a database for corrective action and future plans.
8. Developing the organization's environmental strategy: Enabling management to develop itsenvironmental strategy for moving towards a greener corporate and performance culture.
9. Communication: Communicating its environmental performance to its stakeholder's through reporting which will enhance the image of the organization.

General steps of Audit

1. Systematic and comprehensive data collection
2. Documentation with physical evidences
3. Independent periodic evaluation with regulatory requirements and appropriate standards
4. Systematic and comprehensive improvement and management of existing system.

The audit process

• Pre-audit activities

The pre-audit activities include the following:

1. The sites / area /division that are to be audited need to be determined and selected.
2. The Audit Team was informed on the date of the audit which enabled them to adjust and become used to the concept.
3. The audit scopes were identified. Audit Team was consulted when establishing the scope.
4. The audit plan was designed in such a way that it accommodated changes based on information gathered during the audit and effective use of resources.
5. Audit team and assignment of responsibility were established.
6. The required working papers were collected. This facilitated the investigations of audit team on the sites.
7. The background information on the facility including the facility organization, layout and processes, and the relevant regulations and standards, were collected.
8. The background information on the site's historical uses, and the location of soil and ground water contamination were collected.
9. The pre-audit questionnaire was informed to auditee.

• Onsite audit activities

The onsite audit includes:

1. The opening meeting is the first step between the audit team and college authority. Inthis meeting the purpose of audit, the procedure and the time schedule were discussed.
2. Site inspection is the second step for onsite activity. In this step the audit team discovered matters which are important to the audit but which were not identified at the planning stage.
3. Onsite phase of the audit developed a working understanding of how the facility manages the activities that influence the environment and how any EMS, if there is one, works.
4. Assessed strengths and weaknesses, controls and risks associated with their failure were established.
5. Gathering audit evidence ie, collecting data and information using audit protocol.
6. Communicated with the Audit Team to obtain most information.
7. Evaluated the audit evidence against the objectives established for the audit.
8. An exit meeting to explain the audit findings.

Methodology

In order to perform green audit, the methodology included different tools such as preparation of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. The study covered the following areas to summarize the present status of environment management in the campus:

- Water management
- Energy Conservation
- Waste management
- E-waste management
- Green area management
- Green Practices

Water Audit

Evaluating the facility of raw water intake and determining the facilities for water treatment. Water harvesting is the best technique that can be adopted by simply storing water and using it at the time of scarcity.

Water Use

This indicator addresses water consumption, water sources, irrigation, storm water, appliances and fixtures. A water audit is an on-site survey and assessment to determine the water use and hence improving the efficiency of its use.

Observations

The study observed that natural spring is major source of supply of water. Water is used for drinking purpose, toilets, laboratory and gardening. During the survey, no loss of water is observed, neither by any leakages nor by over flow of water from overhead tanks. However, during Monsoon season very less amount of overflow takes place through drains. The data collected from all the departments is examined and verified. On an average the total use of water in the college is 3600 L/day which include domestic purposes, gardening and for different laboratories .

The work on rain water harvesting is under process. There is rain water storage unit in the Diamond Jubilee block, at the eastern side of the main campus, which was constructed XI plan grant. It was inaugurated in September 2016.

Recommendations

- Need of monitoring, controlling overflow is essential and periodically supervision drills should be arranged. In campus small scale/medium scale/large scale reuse and recycle of water system is necessary.
- Minimize wastage of water and use of electricity during water filtration process, if used.
- Ensure that all cleaning products used by college 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.

Audit Framework and detailed findings: Water management

Control objective	Control(s)	Audit Observation
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 done to control water wastage.
	Install appliances which reduce water consumption	Practiced as much as possible.
	Encourage a decrease in water usage among staff, students and conference guests	College does encourage a decrease in water usage among staff, students and conference guests. The water consumption is minimal.
	Purchase the most efficient washing machines and dishwashers available which have an economy setting as default	These are not required by the college.
	Use an efficient and hygienic water storage mechanism to minimize the loss of water during storage	The college cleans the reservoirs in regular intervals (twice a year) .
	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	The college has RO to filtrate the water.
	Install Water recycling mechanism, such as rain water harvesting system	The college has Rain water Storage system.

Energy Audit

It deals with the energy conservation and methods to reduce the consumption and the related pollution.

Energy Conservation

This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliance, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment.

Observations

Total energy consumption is determined as 21000 KWH/Year by major energy consuming equipment. All the departments and common facility centers are equipped with LED lamps. Approximately 51 LED bulbs are counted during survey. The college has 32 Air conditioning machines. Equipment like Computers (161 nos with TFT monitors and 06 laptops) and printers (22) are used with power saving mode. The college conducts the switch off drills at regular intervals. In the laboratories the switch is shut down after occupancy time and is one of the green practices for energy conservation.

Recommendations

- 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.
- Appreciate that it is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity.
- Installation of more LED lamps instead of CFL.

Audit Framework and detailed findings: Energy management

Control objective	Control(s)	Audit Observation
	Support renewable and carbon-neutral electricity Optionson any energy-purchasing consortium, with the aim of supplying all college properties with electricity that can be attributed to renewable and carbon-neutral sources.	No, the college does not have any choice of 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.
Reduce energy consumption, especially of energy derived from fossil fuels	Appreciate that it is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity	The College have no choice other than *WEST BENGALSTATE ELECTRICITY DISTRIBUTION COMPANY LIMITED*. The company is a PSU of Govt of West Bengal. The company which invests Roof top Solar PV systems.
	Look in to the possibility of on-site micro-generation of renewable electricity.	The College has no Solar panel for the supply of renewable energy.
	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 as much as practicable.
	Provide energy efficient heating systems, with adjustable controls for individual heating appliances wherever possible, and ensure that comprehensible instructions are available to staff and students on the use of heating controls.	No Room Heaters are used in winter season.

	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. Visible reminders are placed above every switch to turn off lights when not in use.
	Monitor and understand the importance of different sources of college energy consumption, and set appropriate and measurable targets for a reduction in certain areas of consumption and/or in the overall consumption of energy.	Disconnect the supply of electricity when notrequired.(Specially during the month long winter vacation).
	Conduct switch off drills at regular intervals	College conducts switch off drills at regular intervals.
	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	All electronic and electricalequipment are switched offwhen not in use. Equipment are configured in power saving mode when such option is available.
	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	Equipment are running on standby mode.

Waste Management Audit

This indicator addresses waste production and disposal of different wastes like paper, food, plastic, biodegradable, construction, glass, dust etc. and recycling. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair, and reuse. Solid waste generation and management is a burning issue. Unscientific handling of solid waste can create threat to everyone. The survey focused on volume, type and current management practice of solid waste generated in the campus. The different solid wastes collected are as mentioned above.

Waste Conservation

Good waste management does more than just clean up the environment – it can also provide diverse benefits for communities that engage in waste management activities.
The broader challenge towards the waste management is to develop local/institutional waste management strategies and to embed local processes to ensure sustainability.

Observations

The total solid waste collected in the campus is 02 Kg/day. Waste generation from tree droppings and lawn management is a major solid waste generated in the campus. The waste is segregated at source by providing separate recycle bins for Bio-degradable (Green colored bins) and Plastic waste (Blue colored bins). Single sided used papers reused for writing and printing in offices and all departments. Unimportant and non-confidential reports/ papers are sent for pulping and recycling after completion of their preservation period. Very less plastic waste (0.05 Kg/day) is generated by some departments, office; garden etc. Metal waste waste is stored and given to authorized scrap agents for further processing. Few glass bottles are reused. The college has practice of paperless office work in administration as much as possible and as a result there is less carbon emission from printers, no carbon copy of bills, filing of cartridge outside the office (if necessary) is observed [the college was closed due to lock down to prevent the COVID 19 outbreak].

The use of single-use plastic carry bags (having thickness less than 5 micron), plastic flags, cups, plates etc are completely banned inside the college campus .

Solid waste from canteen like food wastes are stored in bins and later deposited in pits; these wastes and vegetable wastes are collected into pits for making compost. This compost is utilized in college gardens; liquid wastes are disposed carefully through well drainage system.

Recommendations

- Reduce the absolute amount of waste that is produced from college staff offices.
- Make full use of all recycling facilities provided by the local authority and private suppliers, including glass, cans, plastic bottles, batteries, print cartridges, cardboard and furniture.
- Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated.
- Single sided papers to be used for writing and photocopy.

Audit Framework and detailed findings: Waste Management

Control objective	Control(s)	Audit Observation
Maximizethe proportionof waste that isrecycled & minimize the quantity of non-recyclable refuse	Reduce the absolute amount of waste that is produced from college staff offices.	The college has to a certain level controlled the amount of waste that it produces from staff offices.
	Make full use of all recycling facilitiesprovided by Municipality and private suppliers, including glass, cans, plastic bottles, batteries, print cartridge, cardboard and furniture.	Yes. College uses the facilities provided by the local authority to recycle the wastes.
	Compost, or cause to be composted, allorganic waste, green waste and un-recycled cardboard produced in or collected from kitchens, gardens, offices and rooms.	College has waste composting facility.
	Recycle or safely dispose of white goods, computers and electrical appliances.	Safe disposal through authorized agents for computers and electrical wastes.
	Use reusable resources and containers and avoid unnecessary packaging where possible	College tries to use reusable resources and avoid unnecessary packaging where possible
	Always purchase recycled resourceswhere these are both suitable and available.	College tries to purchase recycled resources where these are both suitable and available.
	Provide sufficient, accessible and well- publicized collection points for recyclable waste, with responsibility for recycling clearly	Yes. College has sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for

	allocated	recycling clearly allocated
	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	Yes! College arranged the events withleast production of waste.
	Promote reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives	Yes!, the college has promoted reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives
	Promote reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives	Yes, the college dispose all waste, whether solid or otherwise, in a scientific manner and ensure that it is not released directly to the environment.
	Adoption of paperless office to reduce waste.	Yes! College has implemented paper less office partially.

E-waste Management Audit

E-waste can be described as electronic equipment that is near or at the end of its useful life. E-waste makes up about 5% of all municipal solid waste worldwide but is much more hazardous than other waste because electronic components contain cadmium, lead, mercury, and Polychlorinated biphenyls (PCBs) that can damage human health and the environment.

E-waste Management System

Electronic waste or e-waste is generated when electronic and electrical equipment become unfit for their originally intended use or have crossed the expiry date. Computers, servers, mainframes, monitors, compact discs (CDs), printers, scanners, copiers, calculators, fax machines, battery cells, cellular phones, transceivers, TVs, iPods, medical apparatus, washing machines, refrigerators, and air conditioners are examples of e-waste (when unfit for use).

E-waste typically consists of metals, plastics, cathode ray tubes (CRTs), printed circuit boards, cables, and so on. Valuable metals such as copper, silver, gold, and platinum could be recovered from e-wastes, if they are scientifically processed. The presence of toxic substances such as liquid crystal, lithium, mercury, nickel, polychlorinated biphenyls (PCBs), selenium, arsenic, barium, brominated flame retardants, cadmium, chrome, cobalt, copper, and lead, makes it very hazardous, if e-waste is dismantled and processed in a crude manner with rudimentary techniques. E-waste poses a huge risk to humans, animals, and the environment. The presence of heavy metals and highly toxic substances such as mercury, lead, beryllium, and cadmium pose a significant threat to the environment even in minute quantities.

Consumers are the key to better management of e-waste. Initiatives such as Extended Producer Responsibility (EPR); Design for Environment (DfE); Reduce, Reuse, Recycle (3Rs), technology platform for linking the market facilitating a circular economy aim to encourage consumers to correctly dispose their e-waste, with increased reuse and recycling rates, and adopt sustainable consumer habits.

Observation

E-waste generated in the college is very less. It is handled, treated and disposed in scientific way. There are 161 computers (with TFT monitors), 22 printers and 02 photo copier and 04 projectors are available in the college. The college generates some e-waste like chips, bulbs, circuit boards, mother boards, computers, batteries, relays, and switches. The non-working computers, spare parts and other non-working electrical equipment are stored in separate places. The college has intention to adopt the Buyback policy. Average E-waste handled is 12 kg (approx) in last year and disposed off through authorized vendors.

Recommendations

- Recycle or safely dispose of white goods, computers and electrical appliances.
- Use reusable resources and containers and avoid unnecessary packaging where possible. Always purchase recycled resources where these are both suitable and available.

Audit Framework and detailed findings: E Waste Management

Control objective	Control(s)	Audit Observation
Reduce the E waste generation	Adoption of Extended Producer Responsibility (EPR), Design for Environment (DfE); Reduce, Reuse, Recycle (3Rs). The EPR is an environment protection strategy that makes the producer responsible for the entire life cycle of the product, especially for take back, recycle and final disposal of the product.	College has no specific policy for E waste management. Time to time E waste are sold out to selected vendors who can possible reuse some components and effectively dispose the rest.

Green area Management Audit

This includes the plants, greenery and sustainability of the campus to ensure that the buildings conform to green standards. This also helps in ensuring that the Environmental Policy is enacted, enforced and reviewed using various environmental awareness programs.

Green Area

Green spaces are important reservoirs of biodiversity, providing resources, ecosystem services and habitats for species of interest, improving functional and structural connectivity at the urban level.

Observations

There are 3140 sqft land which is available as green area. Campus is located in the vicinity of different types of species of plants. The campus is enriched by different bio diversities like bryophytes, pteridophytes, arthropod, mollusca and reptiles. Various tree plantation programs are being organized at college campus. This program helps in encouraging eco-friendly environment which provides pure oxygen within the institute and awareness among local people. The plantation program includes various types of indigenous species of ornamental and medicinal wild plant species. There is garden which is maintained by the gardener. The NSS unit of the college and the members of Nature club of the college also look after the college greenery. The college has taxonomically identified all the plants available in the campus.

There is a college beatification subcommittee as well to look after and plan for greening of the campus.

Recommendations

- Promote environmental awareness as a part of course work in various curricular areas, independent research projects, and community service.
- Create awareness of environmental sustainability and take action to ensure environmental sustainability.
- Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings.

Audit Framework and detailed findings: Green Area Management

Control objective	Control(s)	Audit Observation
Development of green area tocompensate CO_2.	Proper Land use pattern to develop green area.	No. There is no proper land use policy of the college.
	Proper Taxonomical identification of plants in the campus.	The plants inside the campusis identified and marked properly.
	Conduct Environmen tAwareness program.	Environment Awareness program i s regularly organizedby the college authority.

Taxonomical identification of plants in the campus

	Scientific name	Family	Local name	Number of plants
1	*Aloe barbadensis*	Liliaceae	Grithakumari	2
2	*Andrographis paniculata*	Acanthaceae	Kalmegh	2
3	*Asparagus officinalis*	Asparagaceae	Satamuli	1
4	*Azadirachta indica*	Meliaceae	Neem	1
5	*Bacopa monnieria*	Scrophulariaceae	Brahmi	1
6	*Boerrahavia repens*	Nyctaginaceae	Punarnaba	1
7	*Calotropis gigantea*	Asclepiadaceae	Akanda	1
8	*Catharanthus roseus*	Apocynaceae	Nayantara	2
9	*Centella asiatica*	Apiaceae	Thankuni	1
10	*Cissus quadrangularis*	Euphorbiaceae	Harjora	1
11	*Clitoria ternatea*	Fabaceae	Aparajita	1
12	*Crotalaria pallida*	Fabaceae	Atosi	1
13	*Cycas circinalis*	Cycaceae	Cycas Male	1
14	*Cycas circinalis*	Cycaceae	Cycas Female	1
15	*Cymbopogon sp.*	Poaceae	Citronella	1
16	*Datura metel*	Solanaceae	Dhutra	1
17	*Digitalis purpurea*	Plantaginaceae	Purple foxglove	1
18	*Dracaena sp.*	Asparagaceae	Dracaena	1
19	*Eclipta prostrata*	Asteraceae	Kesuth	1
20	*Glycyrrhiza glabra*	Fabaceae	Jastimadhu	2
21	*Gymnema sylvestre*	Asclepiadaceae	Gurmar	1
22	*Helianthus annus*	Asteraceae	Surjomukhi	1
23	*Heliotropium indicum*	Boraginaceae	Hatisur	1
24	*Hemidesmus indicus*	Asclepiadaceae	Ananatamul	1
25	*Holarrhena pubescens*	Apocynaceae	Kurchi	1
26	*Hydrilla verticillata*	Hydrocharitaceae	Hydrilla	2
27	*Ixora coccinea*	Rubiaceae	Rangan	1
28	*Jatropha gossypifolia*	Euphorbiaceae	Bherenda	1
29	*Justicia adhatoda*	Acanthaceae	Basak	1
30	*Leonurus sibiricus*	Lamiaceae	Raktadron	1
31	*Mentha spicata*	Lamiaceae	Pudina	1
32	*Mimosa pudica*	Fabaceae	Lajabati	1

33	*Nerium indicum*	Apocynaceae	Korobi	1
34	*Nymphaea rubra*	Nymphaeaceae	Lal Shaluk	2
35	*Ocimum basilicum*	Lamiaceae	Babui Tulsi	2
36	*Ocimum gratissimu*m	Lamiaceae	Ram Tulsi	2
37	*Paederia scandens*	Rubiaceae	Gandal	2
38	*Papaver somniferum*	Papaveraceae	Posto	2
39	*Piper nigrum*	Piperaceae	Golmorich/Black Pepper	2
40	*Plantago ovata*	Plantaginaceae	Isabgol	2
41	*Plumbago zeylanica*	Plumbaginaceae	Lalchita	2
42	*Psoralea corylifolia*	Fabaceae	Babchi	2
43	*Rauvolfia serpentina*	Apocynaceae	Sarpagandha	2
44	*Ravenala madagascariensis*	Musaceae	Panthapadap/ Traveller's Palm	1
45	*Rhoeo discolor*	Commelinaceae	Rhoeo	2
46	*Rivina humilis*	Petiveriaceae	Lal Jhanti	1
47	*Selaginella* sp.	Sellaginaceae	Selaginella	1
48	*Setcreasea Purpurea*	Commelinaceae	Setcreasea	1
49	*Solanum torvum*	Solanaceae	Bon-Begun	1
50	*Stevia rebaudiana*	Astearceae	Mistipata	2
51	*Tinospora cordifolia*	Menispermaceae	Guloncha	1
52	*Tylophora indica*	Asclepiadaceae	Antamul	1
53	*Uraria picta*	Fabaceae	Sankarjata	2
54	*Vitex negundo*	Verbenaceae	Nishinda	1
55	*Withania somnifera*	Solanaceae	Ashwagandha	2
56	*Zamia furfuracea*	Zamiaceae	Zamia	1
57	*Zea mays*	Poaceae	Bhutta	2
58	Bombax ceiba	Malvaceae	Simul	1
59	Delonix regia	Fabaceae	Gulmohur	1
60	Mimusops elengi	Sapotaceae	Bokul	1
61	Polyalthia logifolia	Annonaceae	Debdaru	6

নিম (azadirachta indica)

বকুল ()

শিমুল

helicornia

হলতাসাক (necotiania plambajinefolia)

শতমূলী (asparagus sp)

Dracaena sp

রক্তকরবী (Nerium indicum family apocynaceae)

তুলসী (ocimum lamiaceae family)

debdaru

রঙ্গন (ixora coccinea)

তুলসী (ocimum lamiaceae family)

Green Practices

"Going **green**" means to pursue knowledge and **practices** that can lead to more environmentally friendly and ecologically responsible decisions and lifestyles, which can help protect the environment and sustain its natural resources for current and future generations. Green Practice includes

1. **Green purchasing**
2. **Green transportation**
3. **Campaign for Go Green**
4. **Green Policy**

Green Practice Audit

Control objective	Control(s)	Audit Observation
Ensure that improvements, purchases and developments are environmentally sound	Seek and act upon professional advice in order to minimize the adverse environmental impact of any new developments and exceed government regulatory requirements. This includes efficient heating and water systems, appropriate space for recycling, and the use of recycled and/or sustainable building materials where possible.	The college has contacted and acts upon professional advice in order to minimize the adverse environmental impact of any new developments and Government regulatory requirements.
	Purchase efficient and environmentally sound appliances	College is positive about increasing greenery by planting in front of the college and maintaining potted plants scientifically as much as possible.
	Purchase food that has been produced and delivered with minimal impact on the environment, this includes buying locally produced, organic and free range food wherever possible.	No, college does not purchase food stuff as the canteen facility is available from 10 am to 5 pm on all working days.
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 with good surface transport. Faculty members, Office staff and students are attending the college by public transport or by own transport like motor cycle etc. A well maintained parking place is available for the two wheelers and four wheelers.

	Reduce the proportion of travel on College business carried out in private transport and eliminate unnecessary and inefficient use of college vehicles	No, college has no vehicle. College uses hired vehicle whenever it is required. Most of the time use Public transport for official works.
	Promote car sharing / car pool among the students and faculty members	Both students and faculty members use either public transport and very less own vehicle.
Minimize the use of chemical pollutants	Ensure that all cleaning products used by college 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 washing liquids are used in the college and all the toilet cleaners are Eco friendly.
	Reduce the practice of burning Plastic and other material that emits harmful gas on burning is prevented in the campus.	The college is plastic free zone. Single use plastic was banned in the campus ever since November, 2021.
	Establish a Garden in the campus.	The college has already maintained garden of 1200 sft (approx) and 57 types of plants are there.
	Minimize the use of fertilizers and pesticides in college grounds, opting for the use of compost produced on site wherever possible.	Negligible amount of fertilizers and pesticides are used in the college.
	Encourage the faculties and students to plant trees in the garden.	Faculty members and students know the importance of the tree plantation.
	Reviews periodically the list of trees planted in the garden.	Such review is conducted on frequent basis.
	Conduct environmental awareness workshops as a part of the program.	The College regularly organizes camps, seminar, and workshops.
	Conduct events such as plant trees to spread environmental awareness among the students	The different groups of College students usually do that.

Ensure that environmentalawareness is created	Create awareness of environmental sustainability and takes actions to ensure environmental sustainability.	Seminars and awareness programmes are conducted on Nature and natural resources, wildlife for the Conservation of Biodiversity.
	Reduce the rate of contributes to the depletion and degradation of natural resources	College does not directly or indirectly involve 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	As per UGC guidelines the subject Environmental Studies is introduced in the curriculum of all the streams. Under this curriculum, students have to appear the examination at the end of 1st semester for two academic credit points.
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 suchbuildings, offering greatest efficiency for energy and water usage, and reducing carbon emission.	The college buildings are more than 50 years old and follow the standards of architecture. The college is a septuagenarian institution, having the main building built back in 1948.
Ensure that the Environmental Policy is enacted, enforced and reviewed	Establish a College 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.	The college has Nature and Nurture Club which looks after the Environment Protection and Campus Beautification. The club also regularly monitors and advocates for environment protection measures and development of green area.
	Ensure that on the Nature Club there will be appropriate representatives of the relevant college departments and authorities – such as catering, gardening, maintenance, cleaning and finance	The college has its Nature Club comprising the staff and students of different departments.

	Ensure that on the Environmental Committee there will be the Green Officer from an external agency who is engaged in the profession of providing guidance on environmental impact	The college has no such Green Officer.
	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 Protection Committee reviews the policy periodically.
	Ensure that the Environmental Policy is enforced regardless of whether its requirements exceed the mandate of the law	Environmental policy of the College: "No to water & Electricity misuse; Optimal waste management".
	Require that every staff and student member recognizes their responsibility to ensure that the commitments in the Environmental Policy are properly put into practice	Every staff and student member recognizes their responsibility to ensure their commitments to the Environment.
	Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings	Green audit is conducted annually.

Recommendations

- The Environmental Protection Committee should be empowered to look after allthe green practices in the college
- More Seminar/ workshop should be organized to create the awareness of Environmental conservation among the students and other stake holders**.**

Conclusion

Considering the fact that the institution is predominantly an under-graduate college, there is significant concern over the environmental conservation both by faculty and students. The environmental awareness initiatives are substantial. The efforts towards paperless work system are noteworthy. Besides, environmental awareness programmes initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of waste management using Eco-friendly and scientific techniques. This may lead to a prosperous future in the context of Green Campus and thus sustainable environment and community development.

As part of green audit of the campus, we also carried out the environmental monitoring of campus which includes illumination, Noise level, and Ventilation and Indoor Air quality of the class room. It was observed that illumination and Ventilation is adequate considering natural light and air velocity present. Noise level in the campus is below 50 dB at day time which is well within the limit.