Green Audit Report
of
BIJOY KRISHNA GIRLS' COLLEGE

BIJOY KRISHNA GIRLS'COLLEGE
5/3, Mahatma Gandhi Road,
Howrah, West Bengal – 733 101.

(Accredited by NAAC at the 'B^{++}' Level)

For the Year 2022-2023

PREPARED BY

M/S. SONAR BHARAT ENVIRONMENT & ECOLOGY (P) LIMITED
(ISO 9001:2015 CERTIFIED COMPANY)
ISO Certificate No. IND/QMS/NAB-C3313/3200
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Bust Statue of the Founder: Principal Sri Bijoy Krishna Bhattacharya

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EXECUTIVE SUMMARY

Rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the green campus for the institute which will lead for sustainable development. Bijoy Krishna Girls' College (BKGC) is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reverse the trends. Being a premier institution of higher studies, the college has initiated 'The Green Campus' programme is conducted every year which activity promotes various project for environmental protection and sustainability.

Purpose of this audit is to ensure that the practices followed in the campus are in accordance with the green policy adopted by the institution, it works on several facets of Green Campus including water conservation, electricity conservation, tree plantation, waste management, paperless work, mapping of biodiversity etc. With this in mind, specific objectives of the audit is to evaluate adequacy of the management control framework of environment sustainability as well as the degree to which the departments are in compliance with the applicable regulations, policies and standards. It can make a tremendous impact on students' health and learning, college operational costs and the environment. The criteria methods and recommendations used in the audit were based on the identified risks.

CHAPTER - 1

INTRODUCTION

1.1 Green Audit

Environmental or Green Audit is a systematic, documented, periodic and objective review by regulated entities of facility operations and practices adopted to meet the environmental requirements (EPA, 2003). In other words, it is a management tool, comprising of systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of helping to safeguard the environment by facilitating management control of practices and assessing compliance with Institutional policies, which would include regulatory requirements and standards applicable.

Environmental auditing is essentially an environmental management tool for measuring the effects of certain activities on the environment against set criteria or standards. Depending on the types of standards and the focus of the audit, there are different types of environmental audit. Organizations of all kinds now recognize the importance of environmental matters and accept that their environmental performance will be scrutinized by a wide range of interested parties.

Considering the present environmental problems of pollution and excessive use of natural resources, Honorable Prime Minister, Shri. Narendra Modi has declared the Mission of Swachch Bharat Abhiyan. Also, University Grants Commission has mentioned the “Green Campus, Clean Campus" mission mandatory for all higher educational institutes. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent.

1.2 Why Green Audit

- To ensure that the performance of the institution with respect to environmental activities is in compliance with existing laws and regulations.

- To check the functionality and their operating success including water supply, energy related matters and other similar matters that are related to green operations in the campus

- To formulate or update the institution's environmental policy, if warranted.

- To measure the environmental impact of operational process related to green activities in the campus.

- To measure the performance of each green related operations and actions in the campus.

- To generate a database of green activities for continuous monitoring to assess the success of each of them.

- To identify future potential liabilities.

- To align the institution's developmental and day to day activities with the stated vision, mission, strategies.

- To identify possible ways to reduce expenditure and running costs on equipments, appliances, etc. or try enhance revenue income.

- To improve process and materials efficiency, and in response to stakeholder requests for increased closure.

1.3 Goals of Green Audit

College has conducted a green audit with specific goals as:

- Assess facility of different types of waste management.
- Increase environmental awareness throughout campus.
- Identification and documentation of green practices followed by university.
- Identify strengths and weaknesses in green practices.
- Conduct a survey to know the ground reality about green practices.
- Analyze and suggest solutions for problems identified from the survey.
- Identify and assess environmental risk.

- The long-term goal of the environmental audit program is to collect baseline data of environmental parameters and resolve environmental issues.

- To motivate staff for optimized sustainable use of available resources.

1.3 Objective of Green Audit

The general objective of green audit is to prepare a baseline report on biodiversity and other resources, measures to mitigate resource wastage and improve resource quality and sustainable practices. The specific objectives are:

- To prepare a checklist of flora and fauna diversity in and around the college campus.

- To suggest measures to improve biodiversity within the college campus.

- To monitor the energy consumption pattern of the college.
- To assess the quantity of water usage within the college campus.

- To suggest sustainable energy usage and water conservation practices.

- To find out various sources of organic and solid waste generation and mitigation possibilities.

- To inculcate values of sustainable development practices through green audit mechanism.

1.5 About Criteria 7 of NAAC

National Assessment and Accreditation Council (NAAC) is a self-governing organization that rated the institutions according to the scores assigned at the time of accreditation of the institution. Green Audit has become a mandatory procedure for educational institutes under Criterion VII of NAAC. The intention of the green audits is to upgrade the environmental condition inside and around the institution. It is performed by considering environmental parameters like water and wastewater accounting, energy conservation, waste management, air, noise monitoring, etc. for making the institution eco-friendly.

Students are the major strength of any academic institution. Practicing green action in any educational institution will inculcate the good habit of caring for natural resources in students. Many environmental activities like plantation and nurturing saplings and trees, Cleanliness drives, no vehicle day, Rainwater harvesting, etc. will make the students good citizens of the country. Through Green Audit, higher educational institutions can ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures.

1.6 Benefit of Green Audit to an Educational Institute

There are many advantages of green audit to an Educational Institute.

- It would help to protect the environment in and around the campus.
- Recognize the cost-saving methods through waste minimization and energy conservation.
- Empower the organization to frame a better environmental performance.
- It portrays a good image of the institution through its clean and green campus.

- More efficient resource management.
- To create a green campus.

- To create plastic-free campus and evolve health consciousness among the Stakeholder.

- Recognize the cost-saving methods through waste minimizing and managing.

- Authenticate conformity with the implemented laws.

- Empower the organizations to frame a better environmental performance.

- Enhance the alertness for environmental guidelines and duties.

- Impart environmental education through systematic environmental management approach and improving environmental standards.

- Benchmarking for environmental protection initiatives.

- Financial savings through a reduction in resource use.

- Development of ownership, personal and social responsibility for the College and its environment.

- Developing an environmental ethic and value systems in youngsters.

- Green auditing should become a valuable tool in the management and monitoring of environmental and sustainable development programs of the College.

- Finally, it will help to build a positive impression through green initiatives for the upcoming NAAC visit.

1.7 Introduction of Auditing Firm

Name of Firm	M/s. Sonar Bharat Environment & Ecology (P) Ltd.
Address	35, C. R. Avenue, 3rd floor, Kolkata - 700012
Contact Details	033-40031179/033-22113034

Details of team Member

Sr. No.	Name	Designation/ Technical	Technical Experience /Qualification
1	Shri Parimal Sarkar	Legal Expert	➢ M.Sc. in Disaster Management ➢ Post Graduate Diploma in Environmental Law from National Law School, Bangalore ➢ Lead Auditor in ISO 14000 (Environmental Management)
2	Shri Subrata De Sarkar	General Manager	➢ General Manager in Central Public Sector undertaking. ➢ 12 years experience in Environmental Auditing ➢ Lead Auditor in ISO 50001:2011

Audit Team

SN	Name	Designation/ Qualification	Experience
1	Shri Suvra Majumdar	➢ Post Graduate Diploma in Energy Management (MBA) ➢ BEE-EA-5723, AEA-0221 (Accredited Energy Auditor) ➢ B.Tech (Electrical Engineering)	➢ 15 years experience of Energy audit
2	Shri Gautam Ghosh	➢ Diploma in Mechanical & Electrical Engineering from Calcutta Technical School	➢ 27 Years experience of working in electrical engineering department in different industries. ➢ 12 years experience in independent electrical auditing

3	Shri Suman Chattaraj	Environmental Specialist	➢ M.Tech in Environmental Science ➢ 20 years experience in Environmental Impact Studies and Auditing

1.8 List of Instruments

Following are the instrument used at the time of the Energy Audit.

Sr.	Instrument	Make/Sr.No.
1	Digital LUX Meter	HTC/2222600
2	Digital Micro OHM Meter	Innova/I-259
3	Digital Multi Meter	Kusam Meco/162180630
4	Digital Clampmeter	Waco/1910149152
5	Meger	Waco/307421
6	Load analyser	Waco/2954563

1.9 List of Laboratory Instruments for Environmental Monitoring

Sl. No.	Name of Equipment	Make	Model

1	GAS CHROMATOGRAPH WITH FID, TSD.	VARIAN	CP3800
2	GAS CHROMATOGRAPH MASS SPECTROMETER WITH ECD	VARIAN	CP 3800 SATURN 2200
3	GAS CHROMA TOGRAPH WITH FID for Air	DANI	Master GC
4	ION CHROMATOGRAPH	Thermo Fisher Scientific	DIONEXICS 1100
5	H.P.L.C.	VARIAN	SERIES 200
6	FTIR	Thermo Fisher Scientific	Nicolet IS10
7	ATOMIC ABSORPTION SPECTRROPHOTOMETER	VARIAN	AA 2406TA 120
8	MERCURY ANALYSER	EC	MAS 5840
9	FLAME PHOTOMETER	LOWERENCE & MAYO	381
10	SPECTRO PHOTOMETER	VARIAN	CARY 50
11	BOD INCUBATOR	MULTISPAN	DIGITAL
12	ELECTRONIC MICRO BALANCE	Citizen	CMSF

1.10 List of Field Equipment Environment Department

Sl. No.	Name of Equipment	Make	Model
1	Field Dust Sampler	Envirotech/Lata Envirotech	APM – 550, PM 2.5 & 10
2	Respirable Dust Sampler	Envirotech/Lata Envirotech	APM-460BL
3	Stack Kit Sampler	Envirotech/Lata Envirotech	APM-620, PM602

4	Sound Level Meter (AUTOMEDTIC)	Envirotech	SLM-101
5	Sound Level Meter	Lutron	SLM-4001
6	Local Air Quality Sampler	Vayubodhan	APM-414
7	Auto Metric Weather Monitor	Spectrum Technology	WM-272
8	Depth Sampler	NA	NA

1.11 General steps involved in Green Audit

a) Systematic and exhaustive data collection.

b) Evidence based documentation of activities.

c) Regular monitoring.

d) Provide standards and methods for improvement by establishing cost effective Green action plan.

CHAPTER – 2

BIJOY KRISHNA GIRLS' COLLEGE

2.1 History of the College

Established in 1947 Bijoy Krishna Girls' College is one of the most renowned colleges of the state under the aegis of College of Calcutta. The founder Principal of the college Sri Bijoy Krishna Bhattacharya, a visionary, started the college with only a handful of girl students in the premises of Bhavani Girls' School and the college was then known as Howrah Girls' College. On his demise the college was renamed after its founder Principal. With its humble beginning the college flourished through its journey of more than 70 years and at present boasts a basket of 27 departments which is perhaps the largest in terms of academic discipline in a college under CU. There is no doubt that Bijoy Krishna Girls' College Howrah has successfully enlightened generations of women to such a degree that they have emerged as triumphant empowered individuals both at home and in the world.

The college obtained its affiliation from the Calcutta College in January 1948, and got recognition from UGC on 10.7.1965 under 2f. The college offers UG programmes in the faculties of Science, Commerce, and Arts and Social Science. The Number of students enrolled in the college under the above faculties in the current academic session is 2977.

The achievements of our students speak for themselves. Many of our students have topped College examinations; some have been awarded medals and prizes in sports and other competitions. The students are also involved in social activities through National Service Scheme befitting their social responsibilities.

Bijoy Krishna Girls' College Howrah has always prioritised pursuit of knowledge, which is not confined to the pages of a text book. Our illustrious alumnae from various spheres of life testify to this fact and have shown their brilliance in diverse spheres of life.

The College has reached its high level of excellence due to the dedicated team work of the teaching, administrative and assisting staff members and also support and encouragement from the Governing Body and above all administrative and financial support from the Higher Education Department, Government of West Bengal.

During its long journey of 70 years, the College has nurtured the vision of excellence through continuous modernisation of the teaching learning process aided by research and all other academic pursuits. Awarded the Grade 'B^{++}' twice, in 2005 & 2016, by the National Assessment and Accreditation Council (NAAC), the College was granted the status of

College with Potential for Excellence by the UGC. It has also been sanctioned a considerable amount of fund under the Rashtriya Ucchatar Shiksha Abhiyan (RUSA 2.0) for infrastructural and IT development.

The synergy between teachers and students is one of our greatest strengths. The teachers are totally committed to the cause of students motivating them to do their best in their chosen fields.

It is perhaps no exaggeration to state that Bijoy Krishna Girls' College Howrah has played a pivotal role in the emancipation of women of the state and the country as well. The College has celebrated 70 long years of tireless striving for knowledge which enriches the mind and ennobles the soul.

2.2 Location of the College

This college is located in the heart of the city and just in the vicinity of Howrah Junction railway station. Howrah known as twin city to Kolkata, located on the west bank of holy Ganges river. The Bhāgirathi-Hooghly river, called 'Ganga' or Ganges traditionally, is very close to the college. Nabanna (building), the new State Secretariat of West Bengal is situated in Howrah and also close to the college.

2.3 Communication & Transportation

This college is well communicated with Kolkata city and other parts of State through railways and roads. It is also well communicated with launch service from Howrah Ferry Ghat. The nearest railway station is Howrah Junction railway station. It is also easy accessible from Sealdah railway station, Santragachi Junction railway station and Kolkata Railway Station. The Kolkata Metro Line 2 or East West Metro Corridor, which is under construction, within a walking distance from the college. The nearest international and domestic airport is Netaji
Subhas Chandra Bose International Airport. Howrah Maidan bus depot is just a walking distance.

2.4 Vision & Mission of the College:

Our commitments towards an overall development of our students have help us formulate our mission along the following lines:-

- To enlighten and impart proper education to our students so that they can find their own niche in the society.
- To generate social, economic and political awareness among the students in order to enable them to take up leading role in overall socio-economic development of the country at large.
- To promote the cause of girl students, emerging from socially and economically backward strata of the society and assist them in establishing their individual entity.

Institutional Distinctiveness

Bijoy Krishna Girls' College, Howrah, is known for transforming and empowering the girl students who come from diverse backgrounds ranging from underprivileged sections to affluent ones and both urban and rural. This college was established by a wise visionary, Sri Bijoy Krishna Bhattacharya with a mission to empower the girls' students and to help them to find their place in this diverse world. The college believes that growing within is the way to uplift oneself. Nurturing the potential of students, enabling them, empowering them to carve their unique paths is the motto behind all the activities performed within the campus. Every cocurricular and extra- curricular activity carried out for the students help to facilitate self-growth, self-worth and actualization of potential through myriad ways of empowerment and competence building.

Over the years there has been a conscious effort on the part of all involved to attain an outlook that is an ideal mix of tradition and modernity, discipline and freedom, acceptance and resistance that is essential for the holistic development of the girls students. Following this trend the college has organised some outstanding programmes that it believes will act as props for the students in their path of development. Nowadays along with regular education women need to learn how to be intellectually simulative, assertive and socially matured. Considering the need of the hour the governing authorities of the college has opened a ***Women Study Centre*** in collaboration with WSRC, University of Calcutta. This is a skill development course as it equips the learners to achieve skill in job market, such as NGOs, further studies in the fields of social work, developmental studies in several research organizations, human rights, law, cyber crime, clinical counsellors etc. In addition to this, a few selective students were sent for Workshop to recruit women undergraduate to pursue studies in ***STEM***, organised by U.S Department of State at the ***US Consulate*** in Kolkata. These trained girls in turn interacted with all girls of Science Stream of the college to make them aware of the concept of STEM. Workshop on Women's safety in collaboration with Infidea is organised by

the college. Teachers and student attended the Workshop on Self -Defence in collaboration with US Consulate General, Kolkata, in Association with ***Kolkata Police*** and Academy of Aikido. World Yoga Day was celebrated. All these programmes were organised with the purpose of bolstering Women Empowerment.

2.5 Aims & Objective:

Established in 1947 on the eve of independence, with this vision, we have started following the under mentioned **Mission and Objectives** for our institution:

- Long cherished goal of socio-economic independence with special emphasis on the education of the girls
- Development of responsible and independent citizenship in the context of
  21st century
- Empowerment of the girls through expansion of knowledge
- Achievement of academic excellence
- Development of participatory model of education with larger involvement of the stakeholders
- Making provision for affordable education
- Holistic and humanitarian education
- Quality upgradation of faculty members by encouraging research and introducing them with technology based newer methods for imparting education
- Encouraging an integrated approach to the development of the institution involving teaching, non-teaching and student members
- To continue with our much coveted CPE status with sustained effort and to move beyond it
- Symbiotic approach in education for a better tomorrow

2.6 Campus Infrastructure:

Bijoy Krishna Girls' College is ragging free Green Campus with free internet facility. It has a very good and systematic building infrastructure. All the classrooms are spacious, well ventilated and comfortable. Total area of college over 11128 Square Metre. Following facilities are available in the campus.

- Well-equipped Library with e library resources
- Internet Facilities for the students
- Medical and Health services
- Computer lab
- Gymnasium
- Students' Canteen
- Sports & Games
- Wifi campus
- Auditorium

CHAPTER - 3

Green audit Methodology

3.1 Utility of Green Auditing

Green audit is used to improve existing anthropogenic activities, with the object to reduce the adverse effects of these activities upon environment. An environmental auditor will study an organization's efforts to conserve the environment in a systematic and documented manner and will produce an environmental audit report.

3.2 Objectives of the Study

The basic objective of green audit is to promote environment management and conservation in the college campus. Purpose of the audit is to identify, quantify, describe and prioritize the framework of environmental sustainability in compliance with the applicable regulations, policies and standards. Major objectives of carrying out green audit are:

- To introduce an awareness among the students regarding real concerns of environment and its sustainability.
- To secure the environment and cut down the threats posed to human health by analyzing the pattern and extent of resource use on the campus.
- To establish a baseline data to assess future sustainability by avoiding the interruptions in environment that are more difficult to handle and their corrections requires high cost.
- To bring out a present status report on environmental compliance.

3.3 Methodology

In order to perform green audit, methodology included different techniques such as physical inspection of the campuses, observation and review of the documentation, interviewing key persons and data analysis, measurement of the present status of environment management in the campuses:

- Water quality assessment, consumption and management
- Air quality assessment and management
- Electricity consumption and management
- Sound pollution monitoring
- Waste management
- Bio diversity status of the campus
- Land use and land coverage
- Rain water Harvesting
- Use of alternate energy sources.

CHAPTER - 4

LAND USE ANALYSIS, BIJOY KRISHNA GIRLS' COLLEGE

4.1 General overview of the concept of land use:

Land use refers to man's activities and the various uses which are carried on and derived from land. Viewing the earth from space, it is now very crucial in man's activities on natural resource. In situations of rapid changes in land use, observations of the Earth from space give the information of human activities and utilization of the landscape.

4.2 Methodology adopted for land use mapping

Three types of data that are GPS points, field survey data and Google earth data for Geo-referencing have been used in this study. Land use map of the study area have been prepared using field survey

CLASSIFICATION SCHEME FOR LAND USE ANALYSIS OF BUILT UP AREA

Level-I	Level-II
1. Built- up land area	1.1 Dense 1.2 Moderate 1.3 Sparse

Therefore, attempt has been made in this study to map land use for Bijoy Krishna Girls' College with a view to detect the land consumption in the built-up land area.

LAND USE DATA OF BIJOY KRISHNA GIRLS' COLLEGE

CATEGORIES OF LAND USE	AREA IN SQ METRES
OPEN SPACE AND PLANTATION	2790
Ground Coverage	8368
TOTAL AREA	11128

Ground coverage of 75.2% (i.e 8368 sq. mtr.) consists of the buildings.

FINDINGS:

Bijoy Krishna Girls' College (BKGC) which was established in the year 1947, has an eco-friendly environment. It has a long legacy of healthy environmental practices including periodic plantation, their preservation and maintenance. Its land use is such that about 24.8% of the total area is occupied by open land and plantation that generates a better and sustainable campus environment.

LAND USE (BUILT UP AREA) ANALYSIS:

Sl. No.	Description	Area in Square Meter

1	Duke Public Library ➢ Ground Floor Cover Area ➢ 1st Floor Cover Area	 289.300 289.300
2	L. Building ➢ Ground Floor Cover Area ➢ 1st Floor Cover Area ➢ 2nd Floor Cover Area	 391.957 391.957 391.957
3	N. Building ➢ Ground Floor Cover Area ➢ 1st Floor Cover Area ➢ 2nd Floor Cover Area (C.I. Shed)	 212.097 212.097 212.097
4	Progya Building ➢ Ground Floor Cover Area ➢ 1st Floor Cover Area ➢ 2nd Floor Cover Area	 124.675 124.675 48.030
5	Science Building ➢ Ground Floor Cover Area ➢ 1st Floor Cover Area ➢ 2nd Floor Cover Area ➢ 3rd Floor Cover Area	 244.242 244.242 244.242 244.242
6	M. Building (Nilanjana) ➢ Ground Floor Cover Area ➢ 1st Floor Cover Area ➢ 2nd Floor Cover Area	 682.558 682.558 191.194
7	Upasana Building ➢ Ground Floor Cover Area ➢ 1st Floor Cover Area ➢ 2nd Floor Cover Area ➢ 3rd Floor Cover Area	 425.867 425.867 425.867 425.867
8	New Building ➢ Ground Floor Cover Area ➢ 1st Floor Cover Area ➢ 2nd Floor Cover Area ➢ 3rd Floor Cover Area ➢ 4th Floor Cover Area	 109.439 100.428 95.411 95.411 95.411
9	Hostel ➢ Ground Floor Cover Area ➢ 1st Floor Cover Area	 408.587 408.587
10	Kitchen ➢ Ground Floor Cover Area	 60.015
11	Canteen ➢ Ground Floor Cover Area	 70.141

	Total Build Up Area	8368.318

CHAPTER – 5

WATER QUALITY ASSESSMENT CONSUMPTION & MANAGEMENT

5.1 Water Quality Analysis Test Report

Qualissure Laboratory Services

NABL ACCREDITED, WBPCB & ISO 9001:2015 CERTIFIED LABORATORY

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45/361, Bose Pukur Road,
Kolkata - 700107
Email : qualissure@gmail.com
Mob. No. : 9831287086
9830093976

DOC NO : QLS/SAMP/08 D/00

TEST REPORT

Name & Address Of the Customer :		
M/s. Bijoy Krishna Girls College 5/2, Mahatma Gandhi Road, Howrah-1	Report No.	: QLS/MR/W/23-24/C/817
	Date	: 06.12.2023
	Sample No.	: QLS/MR/W/23-24/817
	Sample Description	: Drinking Water
	Sample Location	: M Building (1st Floor)
	Sample Drawn On	: 30.11.2023
	Date of Performance	: 01.12.2023-05.12.2023
	Ref No. & Date	: SBEEPL/BKGC/2023-24/16, 28.11.2023

Analysis Result

(A) Microbiological Analysis

Sl. No.	Characteristic	Limit as per Drinking Water Standard : IS:10500, 2012 RA: 2018 Amd. 2	Test Method	Result
1.	Total Coliform Bacteria/100ml	Not Detectable	IS 15185: 2016	Not Detected
2.	E.coli /100ml	Not Detectable	IS 15185: 2016	Not Detected

(B) Chemical Analysis

Sl. No.	Test Parameter	Test Method	As per Drinking Water Standard : IS:10500, 2012 RA: 2018 Amd. 1 & 2		Result
			Acceptable Limit	Permissible Limit	
1.	pH Value at 25°C	IS 3025 (Part 11): 1984 RA: 2019	6.5-8.5	No Relaxation	6.99
2.	Turbidity in NTU	IS 3025 (Part 10): 1984 RA: 2017	1	5	<1.0
3.	Total Dissolved Solids (TDS) in mg/l	IS 3025 (Part 16): 1984 (RA 2017)	500	2000	274
4.	Calcium(as Ca) in mg/l	IS 3025 (Part 40): 1991(RA 2019)	75	200	38.4
5.	Chloride(as Cl) in mg/l	IS 3025 (Part 32): 1988 (RA 2019)	250	1000	65.5
6.	Iron (as Fe) in mg/l	IS 3025 (Part 53): 1988(RA 2019)	1.0	No Relaxation	0.14
7.	Magnesium(as Mg) in mg/l	APHA 24th Edition- 2023, 3500 Mg	30	100	29.2
8.	Nitrate (as NO3) in mg/l	IS 3025 (Part 34): 1988(RA 2019)	45	No Relaxation	<0.5
9.	Free Residual Chlorine in mg/l	IS 3025 (Part 26) 1986: RA: 2021	0.2	1.0	<0.1
10.	Sulphate (as SO4) in mg/l	IS 3025 (Part 24): 1986 (RA 2022)	200	400	16.4
11.	Alkalinity (as CaCO3) in mg/l	IS 3025 (Part 23): 1986 (RA 2019)	200	600	144.4
12.	Total Arsenic(as As) in mg/l	IS 3025 (Part 37): 1988 (RA 2019)	0.01	No Relaxation	<0.01
13.	Total Hardness (as CaCO3) in mg/l	IS 3025 (Part 21): 2019	200	600	180.0

Report Prepared By:

for Qualissure Laboratory Services
Reviewed & Authorized By

Soumy Chakraborty, Microbiologist
(Authorized Signatory)

for Qualissure Laboratory Services
Reviewed & Authorized By

Bishnupriya Banerjee, Chemist
(Authorized Signatory)

End of the Report-------

- *The results relate only to the item(s) tested.*
- *This Test Report shall not be reproduced without the permission of Qualissure Laboratory Services*
- *The reserved part of sample(s), except perishable sample(s), shall be retained for 30 days from the date of issue of the Test Report*

Fig. 1 : Drinking water sample collect

WASTE WATER ANALYSIS REPORT

Qualissure Laboratory Services
NABL ACCREDITED, WBPCB & ISO 9001:2015 CERTIFIED LABORATORY

361, Prantick Pally,
45/361, Bose Pukur Road,
Kolkata - 700107
Email : qualissure@gmail.com
Mob. No. : 9831287086
9830093976

DOC NO : QLS/SAMP/08 D/00

TEST REPORT

Name & Address Of the Customer :	Report No.	: QLS/MR/W/23-24/C/818
M/s. Bijoy Krisna Giris College	Date	: 06.12.2023
S/3, Mahatma Gandhi Road,	Sample No.	: QLS/MR/W/23-24/818
Howrah-1	Sample Description	: Waste Water
	Sample Location	: Near Canteen
	Sample Drawn On	: 30.11.2023
	Date of Performance	: 01.12.2023 05.12.2023
	Ref No. Date	: SBEGPH /BKGC/2023-24/15, 28.11.2023

Analysis Result

Sl. No.	Parameter	TEST METHOD	Result	Limit as per CPCB for discharge of effluents	
				Inland Surface Water	Public Sewers
1.	pH at 25°C	APHA 24th Edition-2023, 4500 H+	7.65	5.5 to 9.0	5.5 to 9.0
2.	Total Suspended Solid in mg/l	APHA 24th Edition-2023, 2540 D	64	100	600
3.	Chemical Oxygen Demand (as COD) mg/l	APHA 24th Edition-2023, 5220B	203	250	---
4.	Biochemical Oxygen Demand (as BOD) mg/l	IS 3025 (Part 44)-1993, RA:2019	56	30	350
5.	Oil & Grease in mg/l	APHA 24th Edition-2023, 5520A	6.3	10	20

Report Prepared By :

for Qualissure Laboratory Services
Reviewed & Authorized By

Bishnupriya Banerjee, Chemist
(Authorized Signatory)

----End of the Report----

- *The results relate only to the item(s) tested.*
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Fig. 2 : Waste water sample collect

CHAPTER – 6

AMBIENT AIR QUALITY ASSESSMENT AND MANAGEMENT

6.1 Air Quality Test Report

Qualissure Laboratory Services
NABL ACCREDITED, WBPCB & ISO 9001:2015 CERTIFIED LABORATORY

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Mob. No : 9831287086
9830093976

DOC NO : QLS/SAMP/08-A/00

TEST REPORT

Name & Address Of the Customer : M/s. Bijoy Krishna Girls College, 5/3, Mahatma Gandhi Road, Howrah-1	Report No.	: QLS/MR/A/23-24/C/1302
	Date	: 04.12.2023
	Sample No.	: QLS/MR/A/23-24/1302
	Sample Description	: Ambient Air
	Sample Mark	: Near Main Gate
	Ref. No.	: SU_CPI/BKGC/2023 24/16
	Ref. Dated	: 28.11.2023

Analysis Result

Location : Near Main Gate		Date of sampling	: 30.11.2023-01.12.2023
Sampling Done by : P.Mandal		Sampling done as per	: CPCB Guidelines (Volume-1)
Environmental Condition : Clear & Sunny		Average Temperature	: 28°C
Barometric Pressure : 758 mm of Hg		Average Humidity	: 54%

Sl. No.	Pollutants	Result	Limit as per CPCB	Method of Test Reference
1	Particulate matter (<10um) in µg/m³	70	100	IS: 5182 (Part-23), RA 2017
2	Particulate matter (<2.5µm) in µg/m³	31	60	USEPA CFR 40,Part 50, Appendix-L
3	Sulphur dioxide (SO_2) in µg/m³	6.0	80	IS: 5182 (Part-2)-2001, RA-2017
4	Nitrogen dioxide (NO_2) in µg/m³	27.4	80	IS: 5182 (Part- 6)-2006, RA-2017
5	Carbon Monoxide (CO) in µg/m³	710	2000	IS: 5182 (Part 10):1999,RA-2014

NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality.

Report Prepared By :

for Qualissure Laboratory Services
Reviewed & Authorized By

Benimadhab Gorai, Chemist
(Authorized Signatory)

-----End of the report-----

- *The results relate only to the item(s) tested.*
- *This Test Report shall not be reproduced without the permission of Qualissure Laboratory Services.*
- *The reserved part of sample(s), except perishable sample(s), shall be retained for 30 days from the date of issue of the Test Report.*

Fig. 3 : Ambient Air sample collect

AMBIENT AIR TEST REPORT

361, Prantick Pally,
45/361, Bose Pukur Road,
Kolkata - 700107
Email : qualissure@gmail.com
Mob. No. : 9831287086
9830093976

Qualissure Laboratory Services

NABL ACCREDITED, WBPCB & ISO 9001:2015 CERTIFIED LABORATORY

JOC NO : QLS/SAMP/08-A/00

TEST REPORT

Name & Address Of the Customer :		
M/s. Bijoy Krishna Girls College s/s, Mahatma Gandhi Road, Howrah-1	Report No.	: QLS/MR/A/23-24/C/1303
	Date	: 04.12.2023
	Sample No.	: QLS/MR/A/23-24/1303
	Sample Description	: Ambient Air
	Sample Mark	: Near Hostel
	Ref. No.	: SBEEPL/BKGC/2023-24/16
	Ref. Dated	: 28.11.2023

Analysis Result

Location : Near Hostel	Date of sampling : 30.11.2023-01.12.2023
Sampling Done by : P.Mandal	Sampling done as per : CPCB Guidelines (Volume 1)
Environmental Condition : Clear & Sunny	Average Temperature : 28°C
Barometric Pressure : 758 mm of Hg	Average Humidity : 54%

Sl. No.	Pollutants	Result	Limit as per CPCB	Method of Test Reference
1	Particulate matter (<10µm) in µg/m³	57	100	IS: 5182 (Part-23), RA-2017
2	Particulate matter (<2.5µm) in µg/m³	28	60	USEPA CFR-40,Part-50, Appendix-L
3	Sulphur dioxide (SO_2) in µg/m³	6.0	80	IS: 5182 (Part-2)-2001, RA-2017
4	Nitrogen dioxide (NO_2) in µg/m³	26.5	80	IS: 5182 (Part- 6)-2006, RA-2017
5	Carbon Monoxide (CO) in µg/m³	664	2000	IS: 5182 (Part-10):1999,RA-2014

NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality.

Report Prepared By :

for Qualissure Laboratory Services
Reviewed & Authorized By

Bonimadhab Gorai, Chemist
(Authorized Signatory)

----End of the report----

- *The results relate only to the item(s) tested.*
- *This Test Report shall not be reproduced without the permission of Qualissure Laboratory Services*
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Fig. 4 : Ambient Air sample collect

CHAPTER – 7

NOISE MONITORING

7.1 *Ambient Noise Monitoring Status:*

361, Prantick Pally,
45/361, Bose Pukur Road,
Kolkata - 700107
Email : qualissure@gmail.com
Mob. No. : 9831287086
9830093976

Qualissure Laboratory Services

NABL ACCREDITED, WBPCB & ISO 9001:2015 CERTIFIED LABORATORY

DOC NO : QLS/SAMP/08 C/00

TEST REPORT

Name & Address Of the Customer:		
M/s. Bijoy Krishna Girls College S/3, Mahatma Gandhi Road, Howrah-1	Report No.	: QLS/MR/A/23-24/C/1304
	Date	: 04.12.2023
	Sample No.	: QLS/MR/A/23-24/1304
	Sample Description	: Ambient Noise
	Ref. No.	: SBEEPL/EKGC/2023-24/16
	Ref. Dated	: 28.11.2023

Monitoring Result of Noise

Sampling Done By : P.Mandal

Sampling Guideline : As per IS: 9876: 1981 (RA-2001)

Date of Monitoring	Location	Leq dB (A) Day Time	Leq dB (A) Night Time
30.11.2023-01.12.2023	Near Garden	57.2	43.0

Code/ Category	Leq dB(A)Day Time	Leq dB(A Night Time
A/Industrial	75	70
B/Commercial	65	55
C/Residential	55	45
D/Ecological Sensitive	50	40

NOTE:
Day Time : 06.00 Hr. – 22.00 Hr.
Night Time : 22.00 Hr. – 06.00 Hr.

Report Prepared By :

for Qualissure Laboratory Services
Reviewed & Authorized By

Benimadhab Goral, Chemist
(Authorized Signatory)

----End of the report----

- *The results relate only to the item(s) tested*
- *This Test Report shall not be reproduced without the permission of Qualissure Laboratory Services*
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Fig. 5 : Noise level monitoring

CHAPTER - 8

RAIN WATER HARVESTING SYSTEM

We can take a few little steps to reduce our dependence on groundwater. To start with, we can save rainwater at our home or building in an effective manner without spending too much money. By using rainwater, an average Indian family can easily harvest enough rainwater to meet its daily needs of water for washing, bathing and even drinking. Rainwater harvesting systems has been configured to supply landscape needs too. Patton tanks are placed below the rain water pipes of the Institute's main Building. Every year before the onset of monsoon the tanks are cleaned to collect the water from the rain water pipes. There is 2 rainwater tank in the campus, which receives the rain water drained from the roof. The tank is connected with pumps to supply the water for usage. The water collected is efficiently utilized for gardening and sometimes for cleaning and construction purposes also. The institute practices rainwater harvesting in a cost effective manner to supply water for landscape irrigation and promotes both water and energy conservation.

Fig. 6 : Rain water Harvesting Tank

CHAPTER - 9

ELECTRICITY CONSUMPTION (IN UNIT) AND MANAGEMENT

9.1 General Details:

Sl.No.	PARTICULARS	DETAILS	
1	Name & Address of College	Bijoy Krishna Girls College (BKGC), 5/3, Mahatma Gandhi Road, Howrah – 711 101.	
	Web Site	https://bkgc.in	
2	Name of Contact Officer	Dr. Ruma Bhattacharyya	
	Designation	Principal	
	Name of Alternative Officer	Dr. Sweta Guha	
	Designation	IQAC Co-ordinator	
3	Telephone No. Mobile No.	033-26412341/26414877 9830014223	
	Fax No. e-mail ID	 bkgc_howrah@yahoo.com	
	No. of shift	3 Shift, 10.00 AM. TO 17.00 PM	
	No. of Employees (Approx)	125	
4	Electricity Consumption	Imported (Purchased) 78343	
5	Specific Energy Consumption	Fuel	Electricity
		6768/-	Rs. 5,18,350/- (Per year)
6	LPD	NIL	
7	EPI	1.28	

9.2 Electrical Details

a) Transformers

	No. 1
Voltage Ratio	N/A
KVA	N/A
% Impendence	N/A

b) Electricity Consumption

	Particulars	Demand
A	Contract demand KVA	91.1
B	Maximum demand	91.1
C	Total Energy units consumed / year	78343
D	Avg. Power Factor(P.F.)	0.97
E	Avg. Energy bills(Rs/month)	Rs. 43,196/-

c) Detailed list of Electric Motors operating in the college

S.NO.	NAME OF THE PLANT	RATING OF MOTOR (KW)	NO. OF MOTORS
1	Bijoy Krishna Girls' College, Howrah.	0.3 to 5 kw	16 nos.

d) Connected Load

	EQUIPMENT	TOTAL NUMBERS	LOAD IN KW (TOTAL)
A	Motors : Greater than 10kW	NIL	NIL
	: Less than 10 kW	16Nos.	40 KW
B	AC & Ventilation with TR capacity		
a)	Others (Package ACs/ Split ACs / Windows ACs), Photocopy Machine, Water Coller with TR	**Room AC of Split/Window type –** 148 KW	
C	Total Process Load (in kW)	90 KW	
D	Total Lighting Load (in kW) & Luminaries details	**No's of lighting luminaries** (LED+T/L+P/L – 70 KW (including fan, compressors, water purifier)	
	Total Load (in KW)	**348 KW**	

A. Lux Measurements :

Sl.no.	**Room**	**Lux level**	**Remarks**
1.	L. Building		
	Ground Floor	205,195,198,194,191,199,164,172	O.K
	1st floor	189,192,196,196,189,181,172,175	O.K
	2nd floor	181,169,162,177,176,180,171,171	
2.	**N. Building**	**Lux level**	
	Ground Floor	192,174,191,174,184,173,172,188	O.K
	1st floor	166,177,164,162, 156,164,166,171	O.K
	2nd floor	148,159,145,153,149,144,145,154	O.K
			O.K
3.	**Progya Building**	**Lux level**	
	Ground Floor	151,148,157,158,158,157,154,158,151	O.K
	1st floor	149,154,153,148,156,152,153,148,149	O.K
	2nd floor	151,157,144,136,156,152,153,157,146	O.K.

Illumination Level Comparison

Area	Average Lighting Level (LUX)	NBC Recommended
L. Buidling	182	300-500
N. Building	165	50-100
Progya Building	152	50

Remarks : Lights needs cleaning at an interval of one month and old light to be replaced by new to get desired lux value

9.3 Use of Alternate Energy

The institute has taken an important step for reduction in pollution level by installation of solar panel and photo voltaic cell for generating electricity. About 28 solar panels are installed at the roof of the College building of main campus. Combined generation capacity is 10KVA.

For reducing carbon emission, and dependence on fossil fuel, the institution has resorted to using green energy by harnessing solar power. In order to increase generation of solar energy, installation of solar panels in the open space around the building was be considered. This helps in reducing Carbon emission.

Fig. 7 : Solar Power system for Green Energy

CHAPTER - 10

WASTE MANAGEMENT

The present Prime Minister of India Sri Narendra Modi launched 'Swachh Bharat Abhiyan' (Clean India Mission) on 2nd October, 2014. In this mission, the proper use of dust/waste bins is one of the major priorities. To implement this mission, collective mass effort is necessary. For proper segregation and management proper use of waste bins is the only solution for waste management purpose in the college campuses.

10.1 Solid Waste

BKGC has set up separate bins to ensure proper segregation and collection of the biodegradable, non-biodegradable and hazardous waste products generated in the campus. The responsibility of recyclable waste is however still not taken up due to devoid of recycling device to carry on the procedure. However, several solid wastes such as glass, cans, used white and brown papers, batteries, print cartridges, cardboard, furniture, damaged pen, carbon papers etc are either sold to vendors for recycling or dispatched via municipality disposal van on regular basis.

Fig. 8 : Solid Waste

10.2 Liquid Waste

- The waste water from college canteen, hostel and washrooms is safely disposed of through internal sewage system connected to the Municipal Corporation sewage line.

- The liquid wastes produced mainly by the Chemistry department are collected in three different plastic containers. If possible, the organic solvents are reused after fractional distillation process. Otherwise the liquid waste is diluted, neutralized and disposed off

- Waste water from Reverse Osmosis systems is collected and reused.

- Leaking taps and pipes if any are periodically checked and serviced.

10.2 E-Waste

Substantial quality of e waste is generated due to extensive use of computer.

All members particularly students have been advised not to throw used pendrive etc. anywhere, but to keep in designated bins. Waste thus collected is stored in secured place.

The usable parts of the outdated computer systems are reused and the unusable parts are resold to the computer junk dealers.

Different electrical items like fan, air conditioner is repaired by the college electrician if possible or otherwise they are disposed of by the Howrah Municipal Corporation.

As per the guidelines of Pollution Control board (P.C.B.) e-waste is to be disposed off through approved vendors of the P.C.B.

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CHAPTER - 11

BIODIVERSITY STATUS OF THE COLLEGE CAMPUS

11.1 Introduction

Bijoy Krishna Girls' College (BKGC) is very rich in biodiversity. To conserve this biodiversity, our first need is to learn about the existing diversity of the place. Unless we know whom to conserve we will not be able to plan proper conservation initiatives. Also, it is important to have an understanding of the bio-diversity of an

area so that the local people can be aware of the richness of bio-diversity of the place they are living in and their responsibility to maintain that richness.

11.2 Objective

The main objective of this study is to get a baseline data of bio-diversity of the area which will include:

1. Documentation of the floral diversity of the area: its trees, herbs, shrubs, climbers and aquatic vegetation.

2. Documentation of the major faunal groups like mammals, reptiles, amphibians, birds and among the insects, butterflies and dragonflies.

3. Documentation of the specific interdependence of floral and faunal life.

Location Map

Fig. 9 : Location map

11.3 Method of Study

Brief methodology for the floral and faunal survey is given below:

a) Sampling was done mostly is random manner.

b) Surveys were conducted for the maximum possible hours in day time.

c) Tree species were documented through physical verification on foot and photographed each species as much as possible.

d) The total area was surveyed by walking at day time.

e) For faunal species we emphasized mainly on the direct sighting. Also call of various birds and amphibians and nesting of some faunal species were considered as direct evidences.

f) Observing mammals depend critically on the size of the species and its natural history. Diurnal species are common and highly visible. Nocturnal species, however, are rare and difficult to detect. Small mammals like the field rats were found near their burrows, particularly during their entry or exit times in or out from their burrows respectively. In some cases, deposits and footprints were also observed that served as a potential clue for the presence and absence of the concerned species. These secondary evidences were all noted with time and space co-ordinates.

g) Birds are often brightly coloured, highly vocal at certain times of the year and relatively easy to see. Sampling was done on the basis of direct sighting, call determination and from the nests of some bird species

h) Reptiles were found mostly by looking in potential shelter sites like crevices of building, logs, tree hollows and leaf litter and also among and underneath the hedges. Sometimes some species, particularly the garden lizards were also observed in open spaces (on twigs and branches and even on brick constructions) while they were basking under direct and bright sunlight.

i) Amphibians act as potential ecological indicators. However, most of them are highly secretive in their habits and may spend the greater part of their lives underground or otherwise inaccessible to biologists. These animals do venture out but typically only at night. They were searched near pond, road beside wetland and in other possible areas. Diurnal search operations are also successful.

j) Active invertebrates like the insects require more active search. For larger winged insects like butterflies, dragonflies and damselflies, random samplings were carried and point sampling was also done.

k) The easiest way to observe many of the invertebrates is simply looking for them in the suitable habitat or microhabitat. Searching was carried out under stones, logs, bark, in crevices in the walls and rocks and also in leaf litter, dung etc. slogs and snails are more conspicuous during wet weather and especially at night when they were found using torch.

11.4 Plant diversity in the College Campus

BKGC premises having about 1116 Sq.Mtr. of land have unique plant diversities. These include some largest trees.

These plants are listed and depicted as following:

List of the Major Plants of the Garden

SL. NO.	COMMON NAME	SCIENTIFIC NAME	FAMILY
1	Debdaru	Polyalthia longifolia Sonn.	Annonaceae
2	Rose	Rosa centifolia L.	Rosaceae
3	Kamini	Murraya paniculata Jack.	Rutaceae
4	China Rose	Hibiscus rosa-sinensis L.	Malvaceae
5	Nayantara	Catharanthus roseus L.	Apocyanaceae
6	Karabi	Nerium oleander Mill	Apocyanaceae
7	Tagar	Tabernaemontana divaricata R.Br.ex. Roem. & Schult.	Apocyanaceae
8	Chatim	Alstonia scholaris L.R.Br..	Apocyanaceae
9	Cape jasmine (Gandharaj)	Gardenia jasminoides J.Ellis	Rubiaceae
10	Betel Nujt (Supari)	Areca catechu L.	Arecaceae
11	Red Silk Cotton	Bombax ceiba L.	Malvaceae
12	Palm	Elacis guinensis Jacq.	Arecaceae
13	Guava	Psidium guajava L.	Myrtaceae
14	Neem	Azadirachta indica (A) Juss.	Meliaceae
15	Peepal Tree	Ficus religiosa L.	Moraceae
16	Kanchan	Bauhiniea acuminate L.	Fabaceae

Fig. 10 : Major plant in the college campus area

11.5 Medicinal Plants in the Campus:

Sl No.	Common Name	Scientific Name	Family
1	Neem	*Azadirachta indica*	Meliaceae
2	Akashmoni	*Acacia auriculiformis*	Fabaceae
3	Krishnachura	Caesalpinia pulcherrima	Fabaceae
4	Yellow Oleander, Kolkey	*Thevetia peruviana*	Apocynaceae
5	Tagar plant	*Tabernaemontana divaricata*	Apocynaceae
6	Parijat, Shiuli	*Nyctanthes arbor-tristis*	Oleaceae
7	Aparajita	*Clitoria ternatea*	Fabaceae
8	Hibiscus	*Hibiscus rosa-sinensis*	Malvaceae
9	Nayantara, Periwinkle	*Catharanthes roseus*	Apocynaceae
10	Tulsi	*Ocimum sanctum*	Lamiaceae
11	Ghritakumari	*Aloe barbadensis*	Liliaceae
12	Curry plant	*Murraya koenigii*	Rutaceae
13	Papaya plant	*Carica papaya*	Caricaceae
14	Wild basil	*Clinopodium vulgare*	Lamiaceae

Fig. 11 : Medicinal plants in the college campus area

11.6 Checklist of Reptiles:

Sl. No.	Common name	Scientific Name	Bengali Name
1	Checkered Keelback	Xenochrophis piscator	Joldhora
2	Buff Striped Keelback	Amphiesma stolatum	Hele
3	Rat Snake	Zamenis longissimus	Darash
4	Skink	Lampropholis sp.	Anjani
5	Oriental Garden Lizard	Colotes versicolor	Girgiti
6	Common House Gecko/Gekko	Hemidactylus frenotus	Tiktiki

Fig. 12 : Reptiles

11.7 Checklist of Birds:

A total of 20 types of bird species were found in the campus, which is quite a good number, in spite of the industrialized surrounding around it.

Total bird species encountered in the college campus.

Sl. No.	Name of Bird	Scientific Name
1	Owl	Strigiformes
2	Sparrow	Passeridae
3	Crow	Corvus
4	Myna	Acridotheres tristis
5	Parrot	Psittacula eupatria
6	Bulbul	Molpastes cafer
7	Koel	Eudynamis scolopaccus
8	Pigeon	Columba livia
9	Indian Vulture	Gyps indicus
10	Indian Cuckoo	Cuculus micropterus
11	Dodo	Raphidae columbiformes
12	Dove	Columbidae columbiformes
13	Duck	Anatidae anseriformes
14	Eagle	Aquila accipitridae
15	Hummingbird	Triochilidae apodiformes
16	Kiwi	Apteryx apterygiformes
17	Ostrich	Struthio camelus
18	Peacock	Pava cristatus
19	Penguin	Pentagonica sphenisciformes
20	Swan	Cygnus coscoroba

Fig. 13: Local Birds

11.8 Checklist of Mammals:

Sl. No.	Common name	Scientific name	Bengali name

1	Indian palm squirrel	*Funumbulus sp.*	Kathberali
2	Frugivorous bat	Suborder Megachiroptera	Badur
3	Insectivorus bat	Suborder Microchiroptera	Chamchike
4	House mouse	*Mus musculus*	Indur
5	Rat	*Rattus norvegicus*	Dhere indur
6	Dog	*Canis lupurs familiaris*	Kukur
7	Cat	*Felis catus*	Biral

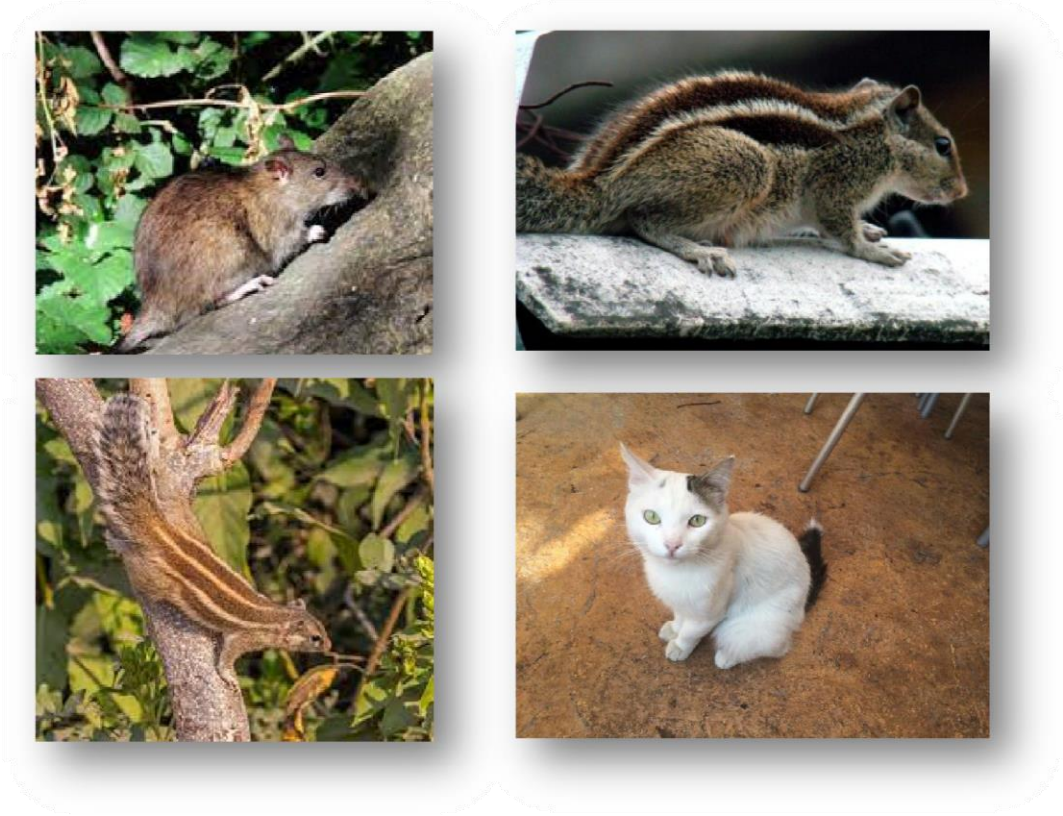

Fig. 14 : Mammals

11.09 Checklist of Ferns and Seasonal Flowers

Sl. No.	Local Name	Common Name	Scientific Name
1.	Petunia	Petunia	*Petunia hybrid*
2.	Verbena	Verbena	*Verbena sp.*
3.	Jaba	China Rose	*Hibiscus rosasinensis L.*
4.	Aparajita	Aparajita	*Clitoria ternatea*
5.	Fern	Fern	*Pteris spp.*
6.	Gulab	Rose	*Rosa* sp.
7.	9 o' clock plant	9 o' clock plant	*Portulaca grandiflora*
8.	Marigold, Ganda	Marigold	*Tagetes erecta*
9.	Maiden Pink, China pink	Maiden Pink	*Dianthus chinensis*
10.	Sandhyamani	Four o clock flower,	*Mirabilis jalapa*
11.	Nayantara	Periwinkle	*Catharanthes roseus*
12.	Shiuli	Parijat	*Nyctanthes arbor-tristis*
13.	Sthalapadma	Confederate rose	*Hibiscus mutabilis*
14.	Tagar	Tagar	*Tabernaemontana divaricata*
15	Madhabilata	Burma creeper	*Quisqualis indica*
16	Maiden Pink	Maiden Pink	*Dianthus deltoids*
17	Mike Ful	Amaryllis	*Hippeastrum sp.*

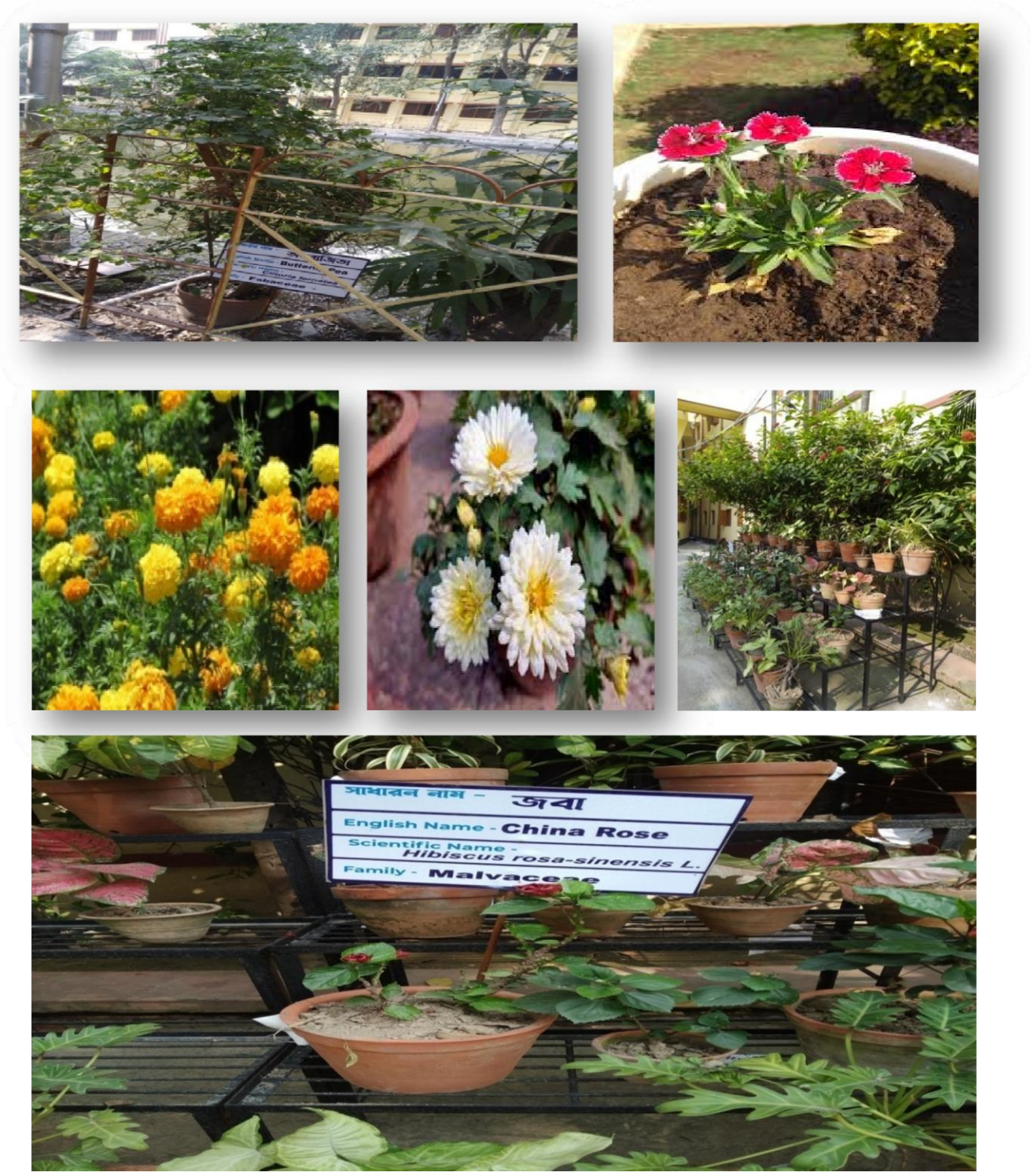

Fig. 15 : Flower of the college premises

CHAPTER - 12

GREEN INITIATIVES

BKGC aims to protect and conserve its biodiversity, fresh and clean ambiance through the following green initiatives to protect and conserve nature.

12.1 Plantation Programme

Plantation programme of Acharya Girish Chandra Bose College promotes environment management and conservation in the college campus with the following objectives:

i) To motivate the students to keep their surroundings green and clean by undertaking plantation of trees.

ii) Promote ethos of conservation of water by minimizing the use of water.

iii) Motivate students to imbibe habits and life style for minimum waste generation, source separation of waste and disposing the waste to the nearest storage points.

iv) To create awareness amongst public and sanitary workers, so as to stop the indiscriminate burning of waste which causes respiratory diseases.

v) To minimize the use of plastic bags, not to throw the min public places as they choke drains and sewers, cause water logging and provide breeding ground for mosquitoes.

vi) Organize tree plantation programmes, awareness programmes such as Quiz, essay, painting competitions, rallys, nukkad natak etc. regarding various environmental issues and educate children about re-use of waste material & preparation of products out of waste

vii) Organize Nature Trail in Wild Life Sanctuaries/Parks/Forest are as to know about the Bio-diversity.

Fig. 16 : Plantation programme

12.2 ***Green computing practice***

Being an academic institution, papers are used for various purposes like exam answer sheets, circulars, notices, office work, document printing, and Xeroxing. Since the trees are cut for paper manufacturing, the sequestration of carbon is reduced increasing carbon footprint. To cut down the carbon footprint, the university administration and various departments follow paperless methods of communication by using emails, online forms submission, etc. The paperless work was helpful in reducing tons of CO_2. The tons of biomass are saved by this green computing practice

CHAPTER – 13

CONSOLIDATION OF AUDIT FINDINGS

Green Audit will create a greater appreciation and under-standing of the impact of college actions on the environment. Bijoy Krishna Girls' College (BKGC) have successfully been able to identity the impacts on the environment through the various auditing exercises. The green auditing exercise have brainstormed and provide insights on practical ways to reduce negative impact on the environment. Participating in this green auditing procedure have gained knowledge about the need of sustainability of the college campus. It will create awareness around the use of the Earth's resources in your home, college, local community and beyond. Bijoy Krishna Girls College (BKGC) should adopt an Environmentally Responsible Purchasing Policy, and work towards creating and implementing a strategy to reduce the environmental impact of its purchasing decisions. White good producing companies are rapidly developing in the area of energy efficiency. Many computer hardware and electrical supply companies now cooperate with customers to reclaim old or damaged parts. Although over twice as expensive up front, LCD monitors are estimated to us 40-60% less energy overall than CRTs. All computers purchased by the college have an Energy Star rating, which is beginning to be a standard requirement for computers.

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13.1 Preparation of Action Plan

Management's policies referring to College and approach towards the use of resources need to be considered in purview of green audit report. An environmental policy should be formulated by the management of the college. The college should have a policy on green awareness raising or training programmes for students and staff, seminars on Environment Awareness are often organized by different departments of the institution, green awareness policy right from kitchen staff to procurement policy by the management. Based on the policies, college should have an action plan. The green auditing report will be a base line for the action plan to be evolved.

13.2 Follow up Action and Plans

Green Audit is an exercise which generates considerable quantities of valuable environment and resource management information. The time and effort and cost involved in this exercise is often considerable and in order to be able to justify this expenditure, it is important to ensure that the findings and recommendations of the audit are considered at the correct level within the organization and action plans and implementation programmes will be conducted n the basis of the audit findings.

13.3 Environmental Education

The following environmental education programmes may be implemented in the college before the next green auditing:-

Training programmes in solid waste management, liquid waste management setting up of biodiversity garden, tree management, medicinal plant nursery, vegetable cultivation, water management, energy management, landscape management, pollution mitigation methods, and water filtration methods.

- Give priority to environmental clubs and its programmes
- Set up model rainwater harvesting system, vegetable garden, medicinal plant garden, butterfly garden etc.
- Conduct exhibition on throw away plastic danger, recyclable products etc.
- Display various slogans and pictures to protect environment.
- Implement chemical treatment system for waste water from the laboratories and incinerators.
- Display of environmental awareness board such as – Save water, save electricity, No wastage of food/water, no smoking, switch off light and fan after use, plastic free campus etc.

CHAPTER - 14

CONCLUSION AND RECOMMENDATIONS

Green Audit is the most efficient way to identify the strength and weakness of environmental sustainable practices and to find a way to solve problem. Green Audit is one kind of professional approach towards a responsible way in utilizing economic, financial, social and environmental resources. Green audits can “add value” to the management approaches being taken by the college and is a way of identifying, evaluating and managing environmental risks (known and unknown). There is scope for further improvement, particularly in relation to waste, energy and water management. The college is recent years consider the environmental impacts of most of its actions and makes a concerted effort to act in an environmentally responsible manner. Even though the college does perform fairly well, the recommendations in this report highlight many ways in which the college can work to improve its activities and become a more sustainable institution.

14.1 Suggestions

a) Adopt the proposed Environmentally Responsible Purchasing Policy, and work towards creating and implementing a strategy to reduce the environmental impact of its purchasing decisions.

b) Increase recycling education on campus.

c) Increase awareness of Environmentally Sustainable Development – Use every opportunity to raise public, government, industry, foundation, and college awareness by openly addressing the urgent need to move toward an environmentally sustainable future.

d) Collaborate for Interdisciplinary Approaches – Convene college faculty and administrators with environmental practitioners to develop interdisciplinary approaches to curricula research initiatives, operations, and outreach activities that support an environmentally sustainable future.

e) Adopt the proposed Environmentally Responsible Purchasing Policy, and work towards creating and implementing strategy to reduce the environmental impact of its purchasing decisions.

f) Increase reduce, reuse, and recycle education on campus.

14.2 Recommendations:

a) Declare the campus plastic free and implement it thoroughly.

b) Fire extinguisher are increasingly needed in College campus areas.

At least two 10 kg capacity extinguisher is to be placed on each end of the floor. Regular refilling should be ensured and date of refilling should be çleàrly marked.

c) Sensor light may be fixed in the toilets for conservation of ènergy.

d) Replace incandescent and CFL lamps with LED Light

e) Replace LCD computer monitors with LED monitors.

f) Avoid plastic/thermocol plates and cups in the college level or department level functions.

g) A separate enclosure needs to be made for storage of scrap and E-waste materials.

h) Noise level monitoring shall be done as per the guideline of "Noise Pollution (Regulation and Control) Rules '2000'.

i) The Biodiversity is to be maintained whole considering the plantation in future.

j) More plants are needed are College campus area.

k) Medicinal garden can be arranged behind the college.

l) Fire safety audit to be required.

m) The ponds should be cleaned every year.

n) All the fans, lights and other electrical & electronics appliances are to be switched off when they are not in use.

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o) Regular checkups and maintenance of pipes, overhead tanks, and plumbing systems should be done by the engineering section to reduce overflow, leakages, and corrosions.

ACKNOWLEDGEMENT

We want to keep on record the excellent co-operation received from the entire team of faculty members, Principal, Co-Ordinator of IQAC and other teaching & non-teaching staff. Without their support, this Audit would not have been possible.

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1. Dr. Ruma Bhattacharyya – Principal
2. Dr. Sweta Guha – IQAC Co-ordinator

For all the assistance provided to the audit team of Sonar Bharat Environment & Ecology Pvt. Ltd.

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Division	: 70	Current issue date	: 14.10.2022
Class	: 70.22	Current expiry date	: 13.10.2025
Process(es) not applicable	: 8.3	1st Surveillance due	: 13.10.2023
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H. Narasimhaiah
Director

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