GREEN AUDIT REPORT OF ULUBERIA COLLEGE

2021-2022

INTERNAL QUALITY ASSURANCE CELL (IQAC)

ULUBERIA COLLEGE,

PO-ULUBERIA, HOWRAH-711315

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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. Uluberia College is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems therefore suitable measure has been taken. Being a premier institution of higher studies, the college has initiated 'The Green Campus' programme few years back that actively promote various projects for environment protection and sustainability.

Purpose of this audit is to ensure that the practices followed in the campuses 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.

Sonar Bharat Environment & Ecology Pvt. Ltd.
Director

CHAPTER – 1

INTRODUCTION

1.1 Green Audit:

Environmental or Green Audit is a systematic, documented, and 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 matter sand 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 ji 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 Utility of Green Audit:

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

ii) 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

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

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

v) Tomeasuretheperformanceofeachgreenrelatedoperationsandactionsinthecampus.

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

vii) To identify future potential liabilities.

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

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

x) To improve process and materials efficiency, and in response to stakeholder requests for increased disclosure.

1.3 Goals of Green Audit:

College has conducted a green audit with specific goals as:

i) Assess facility of different types of waste management.
ii) Increase environmental awareness throughout campus.
iii) Identificationanddocumentationofgreenpracticesfollowedbyuniversity.
iv) Identify strengths and weaknesses in green practices.
v) Conduct a survey to know the ground reality about green practices.
vi) Analyze and suggest solutions for problems identified from the survey.
vii) Identify and assess environmental risk.
viii) Thelong-term goal of the environmental audit program is to collect baseline data of environmental parameters and resolve environmental issues.
ix) To motivate staff or optimized sustainable use of available resources.

1.4 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:

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

ii) To suggest measures to improve biodiversity within the college campus.

iii) To monitor the energy consumption pattern of the college.

iv) To assess the quantity of water usage within the college campus.

v) To suggest sustainable energy usage and water conservation practices.

vi) Tofindoutvarioussourcesoforganicandsolidwastegenerationandmitigationpossibilities.

vii) Toinculcatevaluesofsustainabledevelopmentpracticesthroughgreenauditmechanism.

1.5 AboutCriteria7of 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 isto upgrades 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-friendlier.

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.

i) It would help to protect the environment in and around the campus.

ii) Recognize the cost-saving methods through waste minimization and energy conservation.

iii) Empower the organization to frame a better environmental performance.
iv) It portrays a good image of the institution through hits clean and green campus.
v) More efficient resource management.
vi) To create a green campus.

vii) To enable waste management through reduction of waste generation, solid and waste.

viii) To create plastic-free campus and evolve health consciousness among the stakeholder.
ix) Recognize the cost-saving methods through waste minimizing and managing.
x) Authenticate conformity with the implemented laws.
xi) Empower the organizations to frame a better environmental performance.
xii) Enhance the alertness for environmental guidelines and duties.

xiii) Impart environmental education through systematic environmental. Management approach and improving environmental standards.

xiv) Benchmarking for environmental protection initiatives.
xv) Financial savings through a reduction in resource use.

xvi) Development of ownership, personal and social responsibility for the University and its environment.

xvii) Developing an environmental ethic and value systems in youngsters.

xviii) Green auditing should become a valuable tool in the management and monitoring of environmental and sustainable development programs of the University.

xix) 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.** (Certified ISO 9001:2015)
Address	35, C. R. Avenue, 3rd floor, Kolkata - 700012
Contact details	033-40031179

i) Details of Team Member

Sr. No.	Name	Designation/ Technical	Technical Experience /Qualification
1	Shri Parimal Sarkar	Legal Expert	xx) M.Sc. in Disaster Management xxi) Post Graduate Diploma in Environmental Law from National Law School, Bangalore xxii) 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
3	Shri Suman Chattaraj	Environmental Specialist	➢ M.Tech in Environmental Science ➢ 20 years' experience in Environmental Impact Studies and Auditing

ii) Energy Audit Team

SN	Name	Designation/Qualification	Experience
1	Shri Suvra Majumdar	➢ Post Graduate Diploma in Energy Management (MBA) ➢ 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

1.8 List of Instruments Energy Audit:

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	KusamMeco/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 Equipments in 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, PM-602
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 Whather Monitor	Spectrum Technology	WM-272
8	Depth Sampler	NA	NA

1.11 General steps involved in Green Audit:

i) Systematic and exhaustive data collection.

ii) Evidence based documentation of activities.

iii) Regular monitoring.

iv) Provide standards and methods for improvement by establishing cost effective green action plan.

CHAPTER – 2

ULUBERIA COLLEGE

2.1 Preface:

The quality of higher education is a natural and necessary consequence of institutional self-inquiry. Concern over environmental deterioration and an understanding of environmental values are logical outcomes of academic research, teaching, and learning processes. Uluberia College has conducted a self-inquiry on the environmental quality of the campus with the following goals in an effort to improve environmental quality and maintain a clean, green and sustainable environment for the next generation of students:

i) To establish an initial assessment of the current state of the environment of the college campus, with an emphasis on the natural and physical environment.

ii) To understand the current best practices of sustainability in connection to the use of water and energy resources, various wastes generations, transportation etc.

iii) To promote awareness of environmental issues through participatory auditing.

iv) To produce a report that provides future strategies and action plans for enhancing environmental quality and baseline data on best practices on our behalf.

This report is compiled by a committee constituted by IQAC, Uluberia College. Maintaining the standard protocol, the committee brainstormed and evolved a questionnaire. With the help of student volunteers and faculty staff members of Uluberia College, the major part of the data was compiled, which the committee analyzed. The remaining part of the data was collected and analyzed with standard methodology and protocol by M/S. Sonar Bharat Environment & Ecology (P) Ltd. The Green Audit Committee has set up both short-term and long-term recommendations for further environmental protection, and it is anticipated that college administrators and all other stakeholders will give proper attention they deserve.

2.2 About the College:

Uluberia College occupies a place of pride in the annals of Higher Education in Howrah District of West Bengal. It has a glorious past. The institution has an impeccable academic record. Students intending to study the traditional courses come to the campus of Uluberia College every year. The Humanities wing of this college is very strong. Subjects like English,Bengali, Sanskrit, Political Science, Philosophy, History, Geography, Economics and Education are taught in this college. Physics, Chemistry, Mathematics, Zoology, Botany, Physiology, Computer Science and Microbiology are also taught here. B.Ed. section is one of the oldest sections in Howrah District and contributes significantly in teacher's Training since its budding.

2.3 College History:

Uluberia college, the dream –child of an educationist and Headmaster of a local high school Sri Haripada Ghosal, started its journey on 16th august 1948. Sri Ghosal, the founder Principal of the college, wanted to start an educational institution for higher studies especially for the girls who had to discontinue their education after completion of their school studies as there was no college nearby. He started the college with a handful of boys and girls, practically begging door to door for girls students the number of Girl student is increasing day by day and in some streams they have outnumbered their other halves. With the passage of time Uluberia college, as an institution of higher studies imparting UG courses to all aspiring learners from diverse communities(minority-dominated)and economic background from rural areas, has prepared, modified and upgraded itself to meet the academic challenges and changing demand of the learners and society.

2.4 Location of the College:

This college is located in the heart of the city (Semi urban) and just in the vicinity of Uluberia railway station. Uluberia College is near about 2 km from Uluberia station.

2.5 Communication and 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 Bouria Ferry Ghat. The nearest railway station is Uluberia railway station. It is also easily accessible from Howrah railway station, Mechada Railway station& Santragachi Railway Station. The nearest international and domestic airport is Netaji Subhas Chandra Bose International Airport.

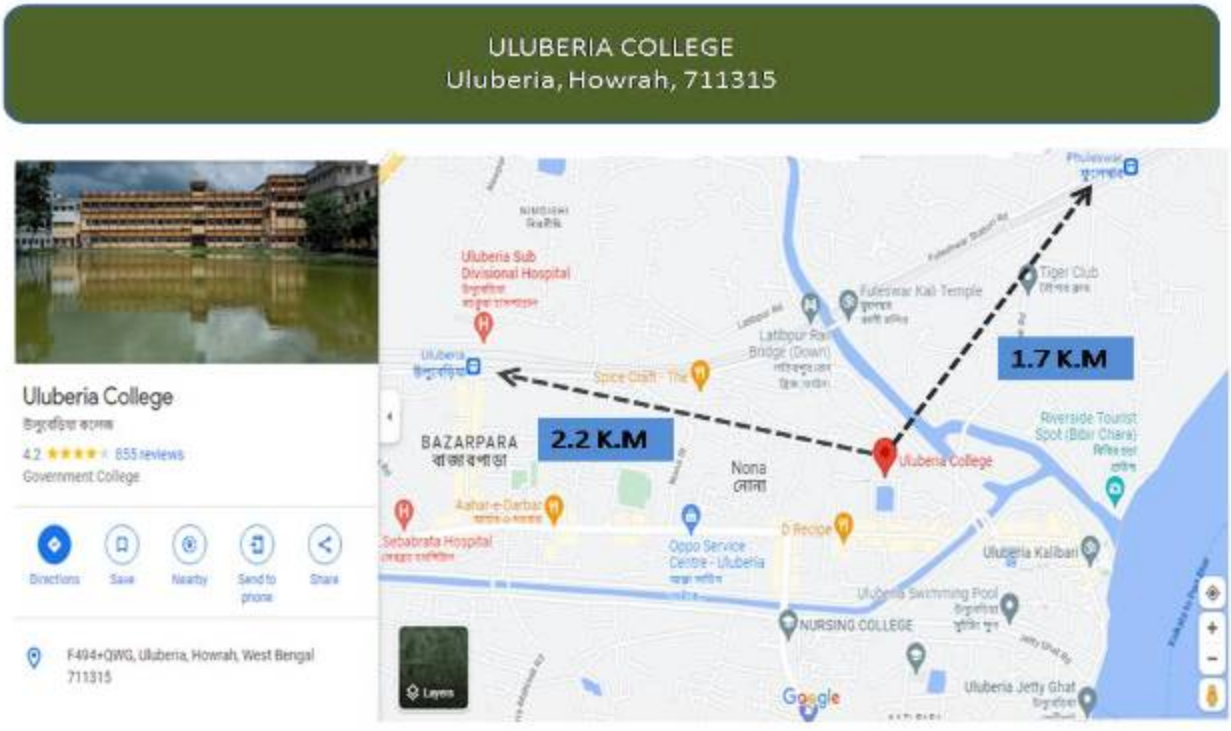

Fig. 1: Communication & Transportation

CHAPTER – 3

GREEN AUDIT METHODOLOGY

3.1 Utility of Green Auditing:

These are used to help improve existing human activities, with the aim of reducing the adverse effects of these activities on the environment. An environmental auditor will study an organization's efforts in conservation of environment in a systematic and documented manner and will produce an environmental audit report.

3.2 Objectives of the Study:

Main 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 framework of environment sustainability in compliance with the applicable regulations, policies and standards. Main objectives of carrying out green audit are:

i) To introduce an awareness among the students regarding real concerns of environment and its sustainability

ii) 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.

iii) 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.

iv) 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:

i) Water quality assessment, consumption and management
ii) Air quality assessment and management
iii) Electricity consumption and management
iv) Sound pollution monitoring
v) Waste management
vi) Bio diversity status of the campus
vii) Land use and land coverage
viii) Rain water Harvesting
ix) Use of alternate energy

CHAPTER – 4

LAND USE ANALYSIS, ULUBERIA COLLEGE, WEST BENGAL (AS ON 17/11/2022)

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

4.3 Classification scheme for land use analysis of buildup 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 Uluberia College with a view to detect the land consumption in the built-up land area.

Land use data of Uluberia College:

CATEGORIES OF LAND USE	AREA IN SQ METRES
OPEN SPACE AND PLANTATION	34347
Ground Coverage	6883
TOTAL AREA	41230

Ground coverage of 16.69% (i.e., 6883 sq meters) consists of the buildings.

FINDINGS:

Uluberia College which was established in the year 1948, 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 83.31% of the total area is occupied by open land and plantation that generates a better and sustainable campus environment.

CHAPTER – 5

Water Quality Assessment, Consumption &Management

Water quality analysis was conducted by Qualissure Laboratory Services

5.1 WATER QUALITY ANALYSIS TEST REPORT:

Name & Address Of the Customer :		
	Report No.	: QLS/W/22-23/C/661
	Date	: 02.12.2022
Uluberia College Howrah.	Sample No.	: QLS/W/22-23/661
	Sample Description	: Drinking Water
	Sample Mark	: Aqua guard
	Sample Drawn On	: 21.11.2022
	Ref No. Date	: SBEEPL/ULBC/2022-2023/42, Dated. 11.11.2022

Analysis Result

(A) Microbiological Analysis

Sl. No.	Characteristic	Limit as per Drinking Water Standard : IS:10500, 2012 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 Amd. 1 & 2		Result
			Acceptable Limit	Permissible Limit	
1.	pH Value at 25°C	IS 3025 (Part 11)- 1984 RA: 2012	6.5-8.5	No Relaxation	8.02
2.	Turbidity in NTU	IS 3025 (Part 10)- 1984 RA: 2012	1	5	<1.0
3.	Total Dissolved Solids (TDS) in mg/l	IS 3025(Part 16)- 1984 RA: 2012	500	2000	227
4.	Calcium(as Ca) in mg/l	IS 3025 (Part 40): 1991(RA 2014)	75	200	20.8
5.	Chloride(as Cl) in mg/l	IS 3025 (Part 32): 1988 (RA 2014)	250	1000	51.9
6.	Iron (as Fe) in mg/l	IS 3025(Part 53)-1988 RA: 2014	1.0	No Relaxation	<0.05
7.	Magnesium(as Mg) in mg/l	IS 3025 (Part 46)-1994 RA: 2014	30	100	10.1
8.	Nitrate (as NO_3) in mg/l	IS 3025 (Part 34)-1986 RA: 2014	45	No Relaxation	<0.5
9.	Free Residual Chlorine in mg/l	IS 3025 (Part 26): 1986(RA 2014)	0.2	1.0	<0.1
10.	Sulphate (as SO_4) in mg/l	IS 3025 (Part 24)-1986, RA: 2014	200	400	27.4
11	Alkalinity (as $CaCO_3$) in mg/l	IS 3025 (Part 23)- 1986, RA: 2014	200	600	144
12.	Total Arsenic(as As) in mg/l	IS 3025 (Part 37):1988,RA 2014	0.01	No Relaxation	<0.01
13.	Total Hardness (as $CaCO_3$) in mg/l	IS 3025 (Part 21)-1983, RA: 2014	200	600	96.7

for **Qualissure Laboratory Services**
Reviewed & Authorized By

(Benimadhab Gorai)
Authorized Signatory

Water supply from municipality approx. 22000 KL.

Fig.2: Water Storage Tank

Fig.3: Drinking water sample collect

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

TEST REPORT

Name & Address Of the Customer :		
Uluberia College Howrah.	Report No.	: QLS/W/22-23/C/662
	Date	: 02.12.2022
	Sample No.	: QLS/W/22-23/662
	Sample Description	: Waste Water
	Sample Mark/Location	: Drain Water
	Sample Drawn On	: 21.11.2022
	Ref No. Date	: SBEEPL/ULBC/2022-2023/42,Dated. 11.11.2022

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 23rd Edition-2017, 4500 H+	6.87	5.5 to 9.0	5.5 to 9.0
2.	Total Suspended Solid in mg/l	APHA 23rd Edition-2017, 2540 D	10	100	600
3.	Chemical Oxygen Demand (as COD) mg/l	APHA 23rd Edition-2017, 5220B	38	250	---
4.	Biochemical Oxygen Demand (as BOD) mg/l	IS 3025 (Part 44)-1993, RA:2014	8	30	350
5.	Oil & Grease in mg/l	APHA 23rd Edition-2017, 5520A	<1.4	10	20

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Fig.4: Waste water sample collect

CHAPTER – 6

AMBIENT AIR QUALITY ANALYSIS REPORT

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

6.1 AMBIENT AIR QUALITY TEST REPORT

Name & Address Of the Customer :		
M/s. Uluberia College Howrah	Report No. Date Sample No. Sample Description Sample Mark Ref No. Date	: QLS/A/22-23/C/1070 :02.12.2022 : QLS/A/22-23/1070 : Ambient Air : Near Block- B : SBEEPL/ULBC/2022-2023/42; Dated: 11.11.2022

Analysis Result

Location: Near Block- B			Date of sampling :22.12.2022	
Sampling Done by: J. Sahana			Sampling done as per : CPCB Guidelines (Volume-1)	
Environmental Condition: Clear & Sunny			Average Temperature : 26°C	
Barometric Pressure : 758 mm of Hg			Average Humidity : 53%	
Sl. No.	**Pollutants**	**Result**	**Limit as per CPCB**	**Method of Test Reference**
1	Particulate matter (<10µm) in µg/m^3	78	100	IS: 5182 (Part-23), RA-2017
2	Particulate matter (<2.5µm) in µg/m^3	42	60	USEPA CFR-40,Part-50, Appendix-L
3	Sulphur dioxide (SO_2) in µg/m^3	6.2	80	IS: 5182 (Part-2)-2001, RA-2017
4	Nitrogen dioxide (NO_2) in µg/m^3	26.2	80	IS: 5182 (Part- 6)-2006, RA-2017
5	Carbon Monoxide (CO) in µg/m^3	642	2000	IS: 5182 (Part-10):1999,RA-2014
NOTE: Limit as per CPCB notification, New Delhi, 18thNovember 2009, for Ambient air quality.				

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

TEST REPORT

Name & Address Of the Customer : M/s. Uluberia College Howrah.	Report No. Date Sample No. Sample Description Sample Mark Ref No. Date	: QLS/A/22-23/C/1071 :02.12.2022 : QLS/A/22-23/1071 : Ambient Air : Near Main Gate : SBEEPL/ULBC/2022-2023/42; Dated: 11.11.2022

Analysis Result

Location: Near Main Gate			Date of sampling :22.11.2022	
Sampling Done by: J. Sahana			Sampling done as per : CPCB Guidelines (Volume-1)	
Environmental Condition: Clear & Sunny			Average Temperature : 26°C	
Barometric Pressure : 758 mm of Hg			Average Humidity : 53%	
Sl. No.	**Pollutants**	**Result**	**Limit as per CPCB**	**Method of Test Reference**
1	Particulate matter (<10µm) in µg/m^3	87	100	IS: 5182 (Part-23), RA-2017
2	Particulate matter (<2.5µm) in µg/m^3	52	60	USEPA CFR-40,Part-50, Appendix-L
3	Sulphur dioxide (SO_2) in µg/m^3	6.9	80	IS: 5182 (Part-2)-2001, RA-2017
4	Nitrogen dioxide (NO_2) in µg/m^3	26.9	80	IS: 5182 (Part- 6)-2006, RA-2017
5	Carbon Monoxide (CO) in µg/m^3	780	2000	IS: 5182 (Part-10):1999,RA-2014
NOTE: Limit as per CPCB notification, New Delhi, 18thNovember 2009, for Ambient air quality.				

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Fig.5: Instrument for measuring air quality

Fig.6: Green Generator

CHAPTER – 7

NOISE MONITORING

7.1 AMBIENT NOISE MONITORING STATUS

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

TEST REPORT

Name & Address Of the Customer :		
M/s. Uluberia College Howrah.	Report No.	: QLS/A/22-23/C/1176
	Date	: 02.12.2022
	Sample No.	: QLS/A/22-23/1176(A-B)
	Sample Description	: Ambient Noise
	Date of Performance	: 21.11.2022
	Ref No. Date	: SBEEPL/ULBC/2022-2023/42; Dated: 11.11.2022

Monitoring Result of Noise

Sampling Done By:J. Sahana

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

Sample No	Date of Monitoring	Location	Leq dB (A) Day Time	Leq dB (A)Night Time
20A	04.04.2022	Block-B	53.0	38.1
20B		Near Main Gate	57.6	40.3

Code/ Category	Leq dB Day Time(A)	Leq dB Night Time(A)	
A/Industrial	75	70	*NOTE:* *Day Time : 06.00 Hr. – 22.00 Hr.* *Night Time : 22.00 Hr. – 06.00 Hr.*
B/Commercial	65	55	
C/Residential	55	45	
D/Ecological Sensitive	50	40	

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Fig.7: Instrument for measuring Noise Meter

CHAPTER – 8

RAIN WATER HARVESTING SYSTEM

A vital environmental concern has been addressed recently by developing Rain Water Harvesting system. Arrangements have been made for collection of rain water from the rooftop, roads and paved areas. Collected water is stored in tank 2000 Ltr. each from where it is used for maintenance of greenery.

Fig.8: Rain water collect storage tank

CHAPTER – 9

ELECTRICITY CONSUMPTION [IN UNITS) AND MANAGEMENT

9.1 General Details:

S.No.	PARTICULARS	DETAILS	
1	Name & Address of Collage	Uluberia College West Bengal Howrah – 711 315.	
	Web Site	www.uluberiacollege.org	
2	Name of Contact Officer	Dr. Debasish Pal	
	Designation	Principal	
	Name of Alternative Officer	Dr. Shyamal Kumar Sarkar	
	Designation	Assistant Professor	
3	Telephone No. Mobile No.	033-26610332 9830584901	
	Fax No. e-mail ID	uluberia.college@rediffmail.com	
	No. of shift	01 shift 10.00AM to 06.00 PM	
	No. of Employees (Approx)	198	
4	Electricity Consumption	Imported (Purchased) 37734	
5	Specific Energy Consumption	Fuel	Electricity
		31,120/-	Rs. 22,511/-
6	LPD	4,320/- per month	
7	EPI	2.18	

9.2 Electrical Details

Transformers

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

Electricity Consumption

	Particulars	Demand
A	Contract demand KVA	7.840
B	Maximum demand	7.840
C	Total Energy units consumed / year	37734
D	Avg. Power Factor(P.F.)	0.91
E	Avg. Energy bills(Rs/month)	Rs.22,511/-
F	KVA Load Peak KWH Duration	Morning Noon Night N.A. N.A. N.A. N.A. N.A. N.A.

9.3 Detiled list of Electric Motors operation in the plant

S.NO.	NAME OF THE PLANT	RATING OF MOTOR (KW)	NO. OF MOTORS
1	Uluberia College, Howrah.	5.59	5 nos.

Connected Load:

	EQUIPMENT	TOTAL NUMBERS	LOAD IN KW (TOTAL)
A	Motors : Greater than 10kW	NIL	NIL
	: Less than 10 kW	5Nos.	5.59 KW
B	AC & Ventilation with TR capacity		
i)	Others (Package ACs/ Split ACs / Windows ACs) with TR	**Room AC of Split/Window type –** 30 Nos. 45 Ton 158 kw	
C	Total Process Load (in kW)	163.59kw	
D	Total Lighting Load (in kW) & Luminaries details	**No's of lighting luminaries** (LED+T/L+ (including fan) Tube Light -13.06 KW LED Light- 8.4 KW Electric Fan - 33.5 KW	
	Total Load (in kW)	219.09kw	

Lux Measurements:

Sl.no.	Room	LUX level	Remarks
1.	BLOCK - A		
	Ground Floor	184,175,176,163,163,143,132,150	
	1st floor	186,183,184,164,179,147,144,151	
	2nd floor	183,187,194,197,166,167,149,147	
2.	BLOCK – B	**LUX level**	
	Ground Floor	181,177,176,148,164,161,143,147	
	1st floor	144,145,141,138, 153,137,144,143	
	2nd floor	126,149,138,143,134,125,136,139	
3.	BLOCK – C	**LUX level**	
	Ground Floor	144,134,154,158,156,158,135,141,138	
	1st floor	134,155,151,146,145,144,155,149,136	
	2nd floor	155,144,139,131,154,136,151,156,129	
4	BLOCK – D	LUX level	
	Ground Floor	144,142,147,149,148,148,145,144,147	
	1st floor	145,165,145,159,153,152,153,159,141	
	2nd floor	149,143,146,148,144,147,144,145,139	
5	BLOCK – E	LUX level	
	Ground Floor	145,147,141,136,136,138,135,142,147	
	1st floor	140,143,144,145,144,145,143,139,140	
	2nd floor	145,145,146,144,143,144,145,143,140	

Illumination Level Comparison:

Area	Average Lighting Level (LUX)	NBC Recommended
BLOCK - A	166	300-500
BLOCK – B	145	300-500
BLOCK – C	146	300-500
BLOCK - D	145	300-500
BLOCK - E	145	300-500

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

9.4 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. Combined generation capacity is 25 KW.

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 may be considered.

Generated power is transferred to the grid. This helps in reducing carbon emission.

Fig.9: Solar Panel

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:

Solid waste collection bin has been placed at strategic points. Waste thus collected is handed over to municipal collection system.

Fig.10: Solid Waste Collect Dustbin

10.2 E-Waste:

Substantial qualtity of e waste is generated due to extensive use of computer.All members particularly students have been advised not to throw used pendrive etc. any where, but to keep in designated bins. Waste thus collected is stored in secured place.

Fig.11: E-Waste Store Room

CHAPTER – 10

BIODIVERSITY STATUS OF THE COLLEGE CAMPUSES

11.1 Introduction:

Uluberia College 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:

i) Documentation of the floral diversity of the area: its trees, herbs, shrubs, climbers and aquatic vegetations.

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

iii) Documentation of the specific interdependence of floral and faunal life.

Survey Area:

Uluberia College premises and its surrounding areas: Situated at P.O. Uluberia, Dist. Howrah – 711315, Uluberia Station nearby around 2 km. from college.

Location Map:

Fig.12: Location map

11.3 Method of Study

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

01. Sampling was done mostly is random manner.
02. Surveys were conducted for the maximum possible hours in day time.

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

04. The total area was surveyed by walking at day time.

05. 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.

06. 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.
07. 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.
08. 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.
09. 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.
10. 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.
11. 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 of the College

Actually, the college campus is eco-friendly with rich flora of bryophyte, peridphytes, gymnosperms and flowering plants like trees, shrubs, herbs, grasses and aquatic plants too. The herbs mostly recorded are naturally grown in the campus. These plants are listed and depicted as following:

11.5 List of the Major Plants of the College

SL. NO.	COMMON NAME	SCIENTIFIC NAME	FAMILY
1	Patharkuchi	Kalanchoepinnata	Crassulaceae
2	GhritaKumari	Aloevera	Liliaceae
3	Sarpagandha	Rauwolfiaserpentine	Apocynaceae
4	Currypatta	MurrayaKoeinigii	Rutaceae
5	Basak	Adhatodavasica	Acnthaceae
6	Nayantara	Vincarosea	Apocynaceae
7	Henna	Lowseniainermis	Lythraceae
8	Arjuna	Terminaliaarjuna	Combretaceae
9	Amada	Curcumaamada	Zingiberaceae
10	Tulsi	Ocimumsanctum	Lamiaceae
11	Lemongrass	Cymbopogoncitrates	Poaceae
12	Fennel	Foeniculumvulgare	Umbelliferae
13	Onion	Alliumsepa	Liliaceae
14	Ekangi	Kaempferiagalanga	Zingiberaceae
16	Kulekhara	Hygrophilaauriculata	Acanthaceae
17	Brahmi	Bacopamoniera	Scrophulariaceae
18	Datura	Daturastrammonium	Solanaceae
19	Kalmegh	Andrographispaniculata	Acanthaceaea
20	Bahera	Terminaliabellerica	Combretaceae
21	Olotkambal	Abromaaugusta	Malvaceae
22	Amla	Emblicaofficinalis	Euphorbiaceae
23	Kulekhara	Hygrophilaauriculata	Acanthaceae
24	Eucalyptus	Eucalyptusglobulus	Myrtaceae
25	Chalim	Alstoniascholaris	Apocynaceae
26	Segun	Tectonagrandis	Lamiaceae
27	Stevia	Steviarebaudiana	Asteraceae
28	Asoka	Saracaasoca	Fabaceae
29	Haritaki	Terminaliachebula	Combretaceae
30	Bael	Aeglemarmelos	Rutaceae

SL. NO.	COMMON NAME	SCIENTIFIC NAME	FAMILY
31	ArecaPalm	Dypsislutescens	Arecaceae
32	Neem	Azadirachtaindica	Meliaceae
33	Jamun	Syzygiumcumini	Myrtaceae
34	Mango	MagniferaIndica	Anacardiaceae
35	Sankarjata	Urariapicta	Fabaceae
36	Papaya	Caricapapaya	Caricaceae
37	Nisindi	Vitexnegundo	Lamiaceae
38	Ayapan	Ayapanatriplinervis	Asteraceae
39	Ramtulsi	Ocimumtenuiflorum	Lamiaceae
40	Bakuchi	Psoraleacoryifolia	Fabaceae
41	Ajwan	Trachyspermumamm	Apiaceae
42	Gurmer	Gymnemasylvestre	Asclepiadaceae
43	Akanda	Calotropisprocera	Apocynaceae
44	Gandal	Paederiafoetida	Rubiaceae
45	Henna	Lawsoniainermis	Lythraceae


Barleria lupulina
Polygonum hydropiper

11.6 Medicinal Plants in the Campus:

SL. NO.	COMMON NAME	SCIENTIFIC NAME	USES
1	Arshagandha	Wythaniasomnifera	Root, Leaf, Fruits and Seed
2	Akanda	Calotropisagigantea	Bark, Root, Leaf, Latex, Flower
3	Ayapan	Eupatorium triplinerve	Whole Plants
4	Tulsi	Ocimum sanctum	Leaf
5	Kari pata	Murrayakoenigii	Root, Leaf, Fruit
6	Bisallakaroni	Barlerialupulina	Leaf
7	Kulephara	Hygrophilaschulli	Whole plant
8	Gurmar	Gymnemasylvestre	Root, Leaf, Fruit
9	Grikumari	Aloe vera	Leaf
10	Thankuni	Cantellaasiatica	Leaf
11	Nayantara	Catharanthusroseus	Whole Plants
12	Neem	Azadirachtaindica	Bark, Leaf, Yound Stem, Unripedfuit, Seed Oil
13	Basak	Adhatodavasika	Leafd, Flower, Bark, Root
14	Bisllakarani	Gendarussa Vulgaris	Leaf
15	Bel	Aeglemarmelos	Root, Young Leaf, Flower, Ripe and Unriped Fruit
16	Sarpagan Jha	Raunolfiaserpentina	Leaf
17	Sughni	Marsileaminuta	Whole Plant
18	Karabi	Neriumodorum	Root, Leaf, Bardk, Stem
19	Black Tulsi	Ocimumtenuiflorum	Whole Plant, Leaf, Seed
20	Muthagrass	Cyperusrotundus	Root

11.7 Checklist of Reptiles

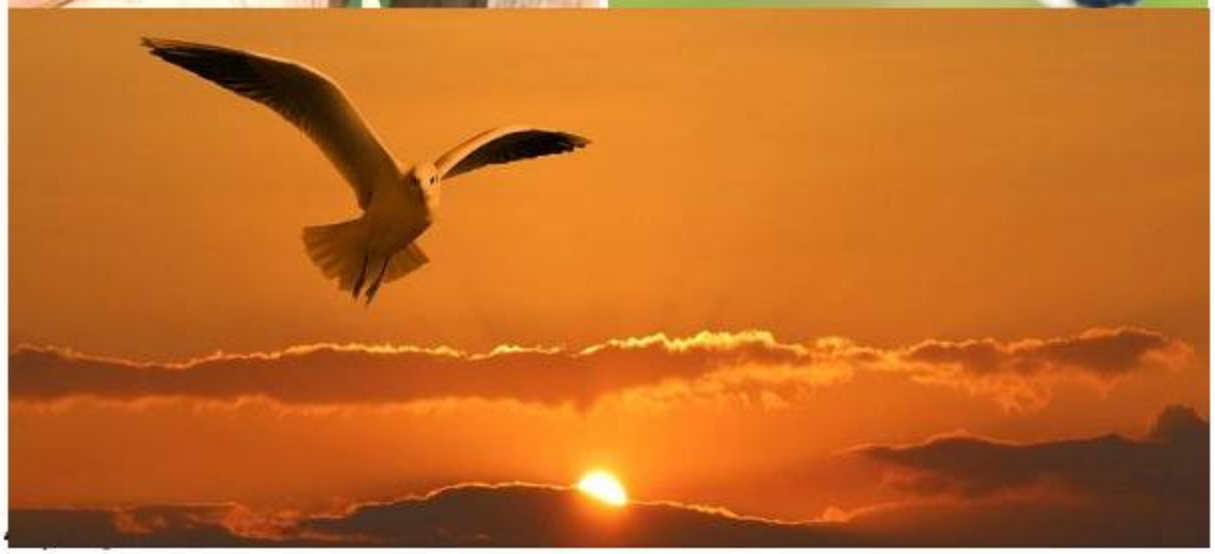
Sl. No.	Common name	Scientific Name	Bengali Name
1.	Checkered Keelback	Xenochrophis piscator	Joldhora
2	Buff Striped Keelback	Amphiesmastolatum	Hele
3	Rat Snake	Zamenis longissimus	Darash
4	Russel's Vipar	Daboia russelii	Chandrabora
5	Skink	Lampropholis sp.	Anjani
6	Oriental Garden Lizard	Colotes versicolor	Girgiti
7	Bengal Monitor Lizard	Varanus bengalensis	Gosap
8	Common House Grcko	Hemidactylus frenotus	Tiktiki

11.8 Checklist of Birds

Sl. No.	Common name	Scientific Name	Bengali Name
1.	Alaxandrine Parakeet	Psittaculaeupatria	Chondona
2.	Asian Koel	Eudynamysscolopaceus	Kokil
3.	Asoan Openbill	Anastomusoscitans	ShamukKhol
4.	Asian Palm Swift	Cypsiurusbalasiensis	Talchonch
5.	Asian Pied Starling	Gracupica contra	Go-shalik
6.	Back Drongo	Dicrurusmacrocercus	Finge
7.	Black Kite	Milvus migrans	Chil
8.	Black-hooded Oriole	Oriolusxanthornus	Benebou
9.	Black-naped Morarch	Hypothymisazurea	
10.	Black-naped Oriole	Oriolus chinensis	KaloghadBenebou
11.	Ble-throated Barbet	Megalaima asiatica	NilgalaBasantabouri
12.	Cattle Egret	Babulcus ibis	Gobok
13.	Common Hawk Cuckoo	Hierococcyxvarius	Papia
14.	Common Hoopoe	Upupa epops	Mohonchuda, Hupo
15.	Common lora	Aegithina tiphia	Fotik Jol
16.	Common Kindfisher	Alcedoatthis	ChhotoMachhranga
17.	Common Myna	Acridotheres tristis	Shalik
18.	Common Pigeon	Columba livia	Payra
19.	Common Sandpiper	Actitishypoleucos	SadharonBalubatan
20.	Common Tailorbird	Orthotomussutorius	Tuntuni
21.	Coppersmith Barbet	Megalaimahaemacephala	Chhotobasantabouri
22.	Eastern Jungle Crow	Corvus (macrorhynchos) levaillantii	Dandkak
23.	Eurasian Collared Dove	Streptopeliadecaocto	KonthiGhunghu
24.	Fulvous-breasted Woodpecker	Dendrocoposmacei	Jarod Kath Thokra
25.	Greater Coucal	Centropus sinensis	Kubo
26.	Green Bee-Eater	Meropsorientalis	Banspati
27.	House Crow	Corvus oplendens	Kak
28.	House Sparrow	Passer domesticus	Chorui
29.	Indian Cormorant	Phalacrocorax fuscicollis	MajhariPankoudi
30.	Indian Pond Heron	Ardeolagrayii	Konchbok
31.	Jungle Babbler	Turdoidesstraitus	Chhatare
32.	Jungle Myna	Acridotheresfuscus	Jhuntshalik
33.	Lesser Goldenback	Dinopiumbenghalense	Chhoto Sonali Kath Thokra
34.	Lineated Barbet	Megalaima lineate	Rekha Basantabouri
35.	Marsh Sandpiper	Tringastagnatilis	BilerBalubatan, jolarChapakhi
36.	Oriental Magpie Robin	Copsychussaularis	Dotel
37.	Pale-billed Flower pecker	Dicaeumerythrorynchos	Poragpakhi
38.	Purple Heron	Ardea purpurea	Lalkank, Nilbogola
39.	Purple Sunbird	Nectarinia asiatica	Durga Tuntuni
40.	Purple-rumped Sunbird	Nectariniazeylonica	Moutushi

Checklist of Birds:

Sl. No.	Common name	Scientific Name	Bengali Name
41.	Red-vented Bulbul	Pycnonotuscafer	Bulbuli
42.	Red-whiskered Bulbul	Pycnonotusjocosus	Shipai Bulbul
43.	Rose-ringed Parakeet	Psittaculakrameri	Tiya
44.	Rufous Treepie	Dendrocittavagabunda	Handichancha
45.	Shikra	Accipiter badius	Turki baaz
46.	Spotted Dove	Stigmatopelia chinensis	Tile Ghughu
47.	Spotted Owlet	Athene brama	KuthurePencha
48.	Stork-bulled kingfisher	Pelargopsis capensis	Gudiyal
49.	Taiga Flycatcher	Ficedula albicilla	Chutki
50.	White Wagtail	Motacilla alba	SadaKhanjon, Khonjona
51.	White-breasted Waterhen	Amsaurornisphoenicurus	Dahuk
52.	White-throated Kingfisher	Halcyon smyrnensis	SadabukMachhranga
53.	Yellow-footed Green Pigeon	Treronphoenicoptera	Horiyal



11.9 Checklist of Grasses

Sl. No.	Local Name	Common Name	Scientific Name
1.	ChepriGhas	Common Carpetgrass	Axonopus sp.
2.	DurbaGhash	Durba	Cynodondactylon

11.10 Checklist of Ferns and Seasonal Flowers and ponds biodiversity

Sl. No.	Local Name	Common Name	Scientific Name
1.	Bird-nest-Fern	Bird-nest Fern	Asplenium sp.
2.	Fern sp.		
3.	Fishtail Fern	Fishtail Fern	Microsorum punctatum
4.	Oakleaf Fern	Oakleat Fern	Drynariaquercifolia
5.	Dog flower, Snadragon	Dog flower, Snapdragon	Antirrhinum majus
6.	Garden stock, Common stock	Garden stock, Common stock	Matthiolaincana
7.	Gazania	Gazania	Gazania sp.
8.	Gladiolus	Gladiolus	Gladiolus sp.
9.	Himsagar	Flaming katy, Florist kalanchoe	Kalanchoe blossfelddiana
10.	Maiden Pink	Maiden Pink	Dianthus deltoids
11.	Mike Ful	Amaryllis	Hippeastrum sp.
12.	Pansy, Garden Pansy	Pansy, Garden Pansy	Viola tricolor var.
13.	Petunia	Petunia	Petunia hybrid
14.	Verbena	Verbena	Verbena sp.

Biodiversity of ponds

Many ecosystems are linked by water and ponds have been found to hold a greater biodiversity of species than larger freshwater lakes or river systems. As such, ponds are habitats for many varieties of organisms including plants, amphibians, fish, reptiles, waterfowl, insects and even some mammals.

Ponds are good for biodiversity

i) This study looked at how to increase plant biodiversity in agricultural landscapes.

ii) Creating clean water ponds was beneficial, increasing the number of plant species, especially the number of rare plant species.

iii) When nothing was done, biodiversity decreased.

iv) Creating clean water ponds to target biodiversity has the significant potential to hold, and even reverse, the decline in the diversity of plants found in freshwaters across farming landscapes.

CHAPTER – 12

GREEN INITIATIVES

Uluberia College 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 Uluberia College promotes environment management and conservation in the college campus with the following objectives:

1. To motivate the students to keep their surroundings green
2. To promote ethos of conservation of water by minimizing the use of water.
3. To motivate students to imbibe habits and lifestyle for minimum waste generation, source separation of waste and disposing the waste to the nearest storage points.
4. To create awareness amongst public and sanitary workers, so as to stop the in discriminate burning of waste which causes respiratory diseases?
5. To minimize the use of plastic bags, not to throw them in public places as they choked rains and sewers, cause water logging and provide breeding ground for mosquitoes. Organize tree plantation programmes, awareness programmes such as Quiz, essay, painting competitions, rallys, natak etc. regarding various environmental issues and educate children about re-use of waste material & preparation of products out of waste.
6. To Organize Nature Trail in Wild Life Sanctuaries/ Parks/ Forest are as to know about the Bio-diversity

Fig. 13: 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 activities on the environment. Uluberia College has successfully been able to identify the impacts on the environment through the various auditing exercises. The green auditing exercise has brainstormed and provided insights on practical ways to reduce negative impact on the environment. Participating in this green auditing procedure has increased knowledge about the need of maintaining 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. Uluberia College 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 computers hardware and electrical supply companies now cooperate with customers to reclaim old or damaged parts. Uluberia College has a tie with a Company (the entrepreneur is an alumnus of our college) which reclaims old or damaged computers and repair or replace them if possible. 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.

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 rising 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 on 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.

i) Give priority to environmental clubs and its programmes.

ii) Set up model rainwater harvesting system, vegetable garden, medicinal plant garden, butterfly garden etc.

iii) Conduct exhibition on throw away plastic danger, recyclable products etc.

iv) Display various slogans and pictures to protect environment.

v) Implement chemical treatment system for waste water from the laboratories and incinerators.

CHAPTER – 14

CONCLUSION AND RECOMMENDATIONS

Green Audit is the most efficient way to identify the strength and weakness of environmentally 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) Replace in candescent and CFL lamps with LED light.
c) Replace LCD computer monitors with LED monitors.
d) Avoid plastic/ thermocol plates and cups in the college level or department level functions.
e) A separate enclosure needs to be made for storage of scrap and waste materials.
f) Exhaust Gas shall be monitored, analyzed and check regularly
g) Parking zone of college shall be neat & clean
h) Use of bicycle within the campus to be encouraged
i) World Environment Day to be celebrated in college premises every year on5th June and whole college students and staff shall get involved and take OATH for ENVIRONMENT CONSERVATION not only in college but also in every span of life.
j) Noise Level Monitoring shall be done as per the guideline of "Noise Pollution (Regulation and Control) Rules 2000.
k) Total33%areaisto be reserved for plantation.
l) The biodiversity is to be maintained while considering the plantation in future.
m) Tree plantation shall be done to maintain biodiversity as well as artificial nesting shall be installed.
n) Awareness among students and staff about green environment shall be done use tools like display boards.
o) General housekeeping needs to be improved. Scrap, waste materials were found scattered all over the campus. These needs to be accumulated and kept in designated place. Awareness programmes should be conducted more frequently. Inter class competition on cleanliness drive can be thought out.
p) Required to be medicinal plant
q) Fire safety Audit required
r) Ponds to be cleared in every year

Sonar Bhasat Environment & Ecology Pvt. Ltd.
Parimal Sarkar
Director

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

Sonar Bharat Environment & Ecology Pvt. Ltd.
Parimal Sarkar
Director

CERTIFICATE

ISO 9001:2015

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Certificate of Compliance

INTEGRATED QUALITY CERTIFICATION PRIVATE LIMITED
hereby certifies that the Quality Management Systems of

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35, Chittaranjan Avenue, 3rd Floor,
Kolkata - 700 012.

has been assessed and conforms to the
Quality Management Systems
ISO 9001:2015

Scope: Consultancy Services on Safety Related Study, Audit Services for Energy, Green, Electrical & Safety and Providing Services Related to Obtaining Statutory Approvals

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
Certificate number	: IND/QMS/NAB-C3313/3200	2nd Surveillance due	: 13.10.2024
Attachment(s)	: None		

H.N.Narasimhatah
Director

Certificate of compliance has an expiry period of 3 years from the current certification cycle start date but shall be considered as expired if the surveillance audit programme indicated in this certificate of compliance is not implemented to maintain confidence that the certified management system continues to fulfil requirements unless otherwise supported by a letter of continued compliance issued by the registered office of Integrated Quality Certification Pvt. Ltd. Certificate of compliance shall be updated in website/registry as suspended and/or withdrawn if the surveillance programme prior to the due date indicated above is not coordinated and implemented. Written information on any significant organizational changes with impact on the certificate of compliance shall be communicated to Integrated Quality Certification Pvt. Ltd prior to the planned audit schedule.

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CIN : U74140KA2003PTC031851
Please visit www.iqcglobal.com to verify the authenticity and validity of this certificate of compliance
QF-12A Rev 00 date 04.12.2019

THE END