

### CONTENT

16

CHAPTER NO.	TITLE	PAGE NUMBER
	Executive Summary	05-05
CHAPTER - 1	Introduction	06-14
1.1	Green Audit	
1.2	Why Green Audit	
1.3	Goals of Green Audit	
1.4	Objective of Green Audit	
1.5	About criteria 7 of NAAC	
1.6	Benefit of Green Audit on Educational Institute	
1.7	Introduction of Auditing Firm	
1.8	List of Instrument Energy Audit	
1.9	List of Laboratory Equipments for Environmental Monitoring	
1.10	List of Field Equipments in Environment Department	
1.11	General Steps involved in Green Audit	
CHAPTER - 2	Suri Vidyasagar College	15-19
2.1	About the College	
2.2	Introduction	
2.3	History of the College	
2.4	Vision of the College	
2.5	Mission of the College	
CHAPTER - 3	Green Audit Methodology	20-21
3.1	Utility of Green Audit	
3.2	Objectives of the study	
3.3	Methodology	
CHAPTER - 4	Land Use Analysis	22-23
4.1	General overview of the concept of land use	
4.2	Methodology adopted for land use mapping	
CHAPTER - 5	Water Quality Assessment	24-26
5.1	Water Quality Test Report	
CHAPTER - 6	Ambient Air Quality Assessment and Management	27-28
6.1	Air Quality Test Report	

13
3
3
3
3
3
3
3
3
3
3
3
3
3
3
3
3
3.
3
<u>s</u> .
3
3
9
9
•
•
•
•

-

		PAGE NUMBER
CHAPTER NO.	TITLE Noise Monitoring	29-29
CHAPTER - 7	Ambient Noise Monitoring Status	
7.1	Rain Water Harvesting System	30-30
CHAPTER - 8		
8.1	Rain Water Harvesting Electricity Consumption and	31-36
CHAPTER - 9	Management	
9.1	General Details	
9.2	Electrical Details	
9.3	Use of Alternate Energy	37-39
CHAPTER - 10	Waste management	31-32
10.1	Solid Waste	
10.2	Liquid waste	
10.3	E-waste	40-54
CHAPTER - 11	Biodiversity Status of the College Campus	40-54
11.1	Introduction	
11.2	Objective	
11.3	Method of Study	-
11.4	Plant Diversity in the College	
11.5	Medicinal Plant in the College	
	Campus	
11.6	Checklist of Reptiles	
11.7	Checklist of Birds	
11.8	Checklist of Mammals	
11.9	Checklist of Ferns and seasonal flowers	
CHAPTER - 12	Green Initiative	55-57
12.1	Plantation Programme	
12.2	Green Computing Practice	
CHAPTER - 13	Consolidation of audit findings	58-59
13.1	Preparation of Action Plan	
13.2	Follow up Action and Plans	
	Environmental Education	
13.3	Conclusion and Recommendation	60-61
CHAPTER - 14	Suggestions	
14.1	Recommendations	
14.2 CKNOWLEDGEMENT	, and the second s	62-62

3 3

\$

•

-

•





## EXECUTIVE SUMMARY

3

3

3

3

3

3

3

3

3

Э

3

3

3

3

3

0

3

3

3

-

3

3

1

•

.

.

2

2

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. Suri Vidyasagar College 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 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 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.

Sonar Bharat Environment & Ecology Pvt. Ltd. arimal Sarkar

Director

# CHAPTER - 1

#### INTRODUCTION

#### Green Audit 1.1

3

3

3

3

3

3

3

3

3

3

3

3

3

3

3

3

3

3

э

3

000

4

2

2

-

2

2

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

13

V

3

3

3

3

3

3

3

3

3

3

3

3

3

3

3

3

3

9

•

•

2

•

2

2

- > 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.
- Y 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 data base of green activities for continuous monitoring to assess the success of each of them.
- > To identify future potential liabilities.
- Fo align the institution's developmental and day to day activities
  - with the stated vision, mission, strategies.
- Y 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 is closure.

#### 1.3 Goals of Green Audit

(B

3

13

13

3

3

3

3

3

3

3

3

3

3

3

Э

3

Э

9

3

3

.

3

-

2

2

2

2

## 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.
- F 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

3

0

13

3

3

3

3

3

3

3

3

3

3

3

3

3

3

Э

3

3

3

3

9

-

2

2

2

National Assessment and Accreditation Council (NAAC) is a selfgoverning 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-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.

- 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 enable waste management through reduction of waste generation, solid and waste.
- 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.

3

3

Э

3

3

3

3

3

3

3

3

3

Э

Э

3

3

3

3

3

3

3

-

3

2

3

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

10

## 1.7 Introduction of Auditing Firm

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

#### Details of team Member

Sr.	Name	Designation/ Technical	Technical Experience /Qualification
<u>No.</u> 1	Shri Parimal Sarkar	Legal Expert	<ul> <li>M.Sc. in Disaster Management</li> <li>Post Graduate Diploma in Environmental Law from National Law School, Bangalore</li> <li>Lead Auditor in ISO 14000 (Environmental Management)</li> </ul>
2	Shri Subrata De Sarkar	General Manager	<ul> <li>General Manager in Central Public Sector undertaking.</li> <li>12 years experience in Environmental Auditing</li> <li>Lead Auditor in ISO 50001:2011</li> </ul>
3	Shri Suman Chchattaraj	Environmental Specialist	<ul> <li>M.Tech in Environmental Science</li> <li>20 years experience in Environmental Impact Studies and Auditing</li> </ul>

### Energy Audit Team

N

.

,

SN	Name	Designation/ Qualification	Experience
1	Shri Suvra Majumdar	<ul> <li>Post Graduate Diploma in Energy Management (MBA)</li> <li>B.Tech (Electrical Engineering)</li> </ul>	<ul> <li>15 years experience of Energy audit</li> </ul>
2	Shri Gautam Ghosh	<ul> <li>Diploma in Mechanical &amp; Electrical Engineering from Calcutta Technical School</li> </ul>	<ul> <li>27 Years experience of working in electrical engineering department in different industries.</li> <li>12 years experience in independent electrical auditing</li> </ul>

## 1.8 List of Instruments

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

-	Instrument	Make/Sr.No.	
Sr.		HTC/2222600	
1	Digital LUX Meter	Innova/I-259	
2	Digital Micro OHM Meter	Kusam Meco/162180630	
3	Digital Multi Meter		
	Digital Clampmeter	Waco/1910149152	
4		Waco/307421	
5	Meger	Waco/2954563	
6	Load analyser	Trucon e - 10	

1.9	List of Laborator	y Instruments for Environmental Monitoring

W

N

•

•

SI. 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
0	MERCURY ANALYSER	EC	MAS 5840
8 9	FLAME PHOTOMETER	LOWERENCE & MAYO	381
10	SPECTRO PHOTOMETER	VARIAN	CARY 50
10	BOD INCUBATOR	MULTISPAN	DIGITAL
11	ELECTRONIC MICRO	Citizen	CMSF
12	BALANCE	Provence	

## 1.10 List of Field Equipment Department

-	Name of Equipment	Make	Model
SI. No. 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
-	Sound Level Meter	Lutron	SLM-4001
5	Local Air Quality Sampler	Vayubodhan	APM-414
6	Auto Metric Whather	Spectrum	WM-272
7	Monitor	Technology	
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.

Ù

-3

- 3

•

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

#### CHAPTER-2

### SURI VIDYASAGAR COLLEGE

#### 2.1 About the College

3

v

13

3

3

3

3

3

3

3

3

3

3

3

3

ی

3

3

3

3

-

-

2

3

Suri Vidyasagar College, named after the famous social reformer, litterateur, and fight for women's empowerment, Pandit Iswar Chandra Vidyasagar, has enter edits 78<sup>th</sup> year of eventful glory, bearing all the storms and buffets since its inception in 1942 as a wing of Vidyasagar College, Kolkata. In 1948, it was elevated to the status of a Degree College and given the name 'Suri Vidyasagar College' under the auspices of Calcutta University. Since 1960, the institute has been associated with the University of Burdwan, and it is presently a constituent College. Former President of the Republic of India, Honourable Shri Pranab Kumar Mukhopadhyay, was an eminent alumnus of this college.

Suri Vidyasagar College has devoted itself since its inception to the goal of imparting higher education, ensuring quality education, and providing research and extra-curricular activities in the best possible manner in order to spread the benefit of higher education in a relatively backward but glorious location. The NSS and NCC wings are doing excellent work in social reform and personality development.

Suri Vidyasagar College is 9.18 acres in size and Buildup area covers approximately 1.183Acre (51,544 Sq. Feet), which is located between the latitudes Latitude of 23°53'47.25"N to23°53'56.70"N and the Longitude of 87°31'57.64"E to 87°32'9.56"E.The College is proud of its eco-friendly Green Campus, which houses 22 departments teaching traditional and modern subjects, digital class rooms, state-of-the-art laboratories, a well-equipped Gymnasium, Language laboratory, distance education and open university study centres, the playground, residential accommodation for both teaching and administrative staff, a Post Office, and a Bank, among other things.

Under the University of Burdwan, the college provides 22 undergraduate courses and one postgraduate programme (Zoology). The college has 3870 students, 106 teaching faculty, and 27 non-teaching employees, and it is expected to grow rapidly. The college library is well- equipped with around 55,000 volumes, journals, reprographic machines, and so on, and it is rapidly progressing towards total digitization of its contents under the direction of two Librarians. At the end of 2016, our institute was reaccredited by NAAC with a rating of B++, the highest of any institute in the district of Birbhum.

#### 2.2 Introduction

3

3

3

3

3

3

Э

3

٢

3

э

2

,

9

Environmental auditing, often known as green auditing, refers to assessments that enable us systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. Environmental compliance and management system short comings, as well as related corrective activities. Green auditing is an effective method for determining how and where the most energy or water resources are being utilised, the type and volume of waste generated, and considerations on how to implement adjustments and save money may then be made. It can raise health awareness while also promoting environmental awareness, morals, and ethics. Overall, it is critical in providing employees and students with a better awareness of the green impact on campus.

#### 2.3 History of College

13

3

3

3

3

3

3

3

3

3

3

3

3

3

3

3

•

2

As far as the historical evidence goes, the first attempt to establish a college in Suri, the headquarters of Birbhum district, started in the year 1934. Under the tutelage of the then local landlord and educationist- Shri Amita Ranjan Mukhopadhyay, popular doctor Kaligati Banerjee, advocate Babu Harikinkar Samanta and other social activists, a working committee was formed, for this mission. The committee started collecting funds from local residents and it was decided that one of the members, Shri Tulsidas Chakraborty would buy them a large mansion by the name of 'Bose Saheber Kuthi', which would then form their base and also double up as the perfunctionary college building until a new one comes up. Funds were raised in the tune of twenty thousand rupees. But, with time the efforts waned and the funds dwindled. Fresh vigour was again observed in 1940. Under the leadership of Birbhum Zilla Board Chairman Shri Harikinkar Samanta, local dignitaries, including MLA Shri Debendranath Das, Shri Rampati Basu, Maulavi Nurul Absar, Md. Nake Moktar, Abdul Majid Choudhury along with the committee members submitted a deputation to the then Bengal 'Prime Minister' and Education Minister-in-Charge, Fajlul Haque, and petitioned for his assistance to bring up the college.

By then, the World War II had started and in India, Calcutta became the prime target of the Japanese. December of 1941 saw fierce bombing on Calcutta by the Japanese forces. This caused widespread panic and people started fleeing Calcutta for the neighbouring townships and villages. It was these circumstances that set the stage for the inception of Suri Vidyasagar College.

In his reminiscence, Jyoti Kishore Chowdhury, the then Principal of Vidyasagar College, Kolkata wrote: 'During those days, fear of bombing was so deep, the college had to be closed and a decision was taken to shift the college elsewhere'.

With the help of Prof. Tribhangamurari Mondal of Birbhum, plans were chalked out to setup the college at a school in Sainthia, a small township and business place near Suri. But, the efforts proved futile as this was disapproved by the then SDO of Suri, Shri Naren Chowdhury. Instead, he referred them to Dr. Kaligati Banerjee of Suri who grabbed the opportunity with both hands. A meeting was called in 1942, at the house of Dr. Kaligati Banerjee. Other than himself, the meeting was adorned by such esteemed luminaries as Shri. Nityanarayan Bandopadhyay, Shri. Umaprasanna Mukherjee (Olu Babu), the president of bar library-Shri Abinash Chandra Mitra, Shri P.C. Chandra, Shri Bankim Mukhopadhyay, Maulavi Nurul Absar, Md. Nake Moktar and Principal

J.K. Chowdhury. They then assembled at Shri. Amitaranjan's house for further assistance. In this regard, a proposal was placed before the Governing Body of Calcutta Vidyasagar College, which they approved along with an initial funding of Rs. 5000/-. Furnitures of the women section of I.Sc. Department were sent to Suri via train. Finally, under the guidance of Principal J.K. Chowdhury and with the newly appointed Vice-Principal (Suri campus) Tribhangamurari Mondal at the helm of affairs, Suri Vidyasagar College came into existence. On 9th March, 1942, under the chairmanship of former Calcutta Vidyasagar College student- Shri. Abinash Chandra Mitra, the college started its journey as a branch of "Vidyasagar College", Calcutta. Classes started in the house adjoining Shri. Amitaranjan's Kali Temple (Kali Bari), while the new building was being constructed south of the adjoining Banyan Tree of the selected place for the new college. Classes shifted to the new building in June 1942. Total number of students in the 1942-43 batch was 212 only. For them, students hostel were also set up in rented rooms at Kendua Village (known as Kendua Chhatrabas), in the out skirts of Suri. After 1948, it became an independent college with the name "Suri Vidyasagar College". The first Principal of the Suri Vidyasagar College was Prof. J. K. Chowdhury from 09.03.1942 to 28.02.50 and the first Vice-Principal was Prof. Tribhanga Murari Mondal.

3

3

3

3

3

•

3

3

3

•

9

7

The College volunteered for institutional accreditation by NAAC, Bangalore, in November 2005. After analysis the executive committee of the NAAC awarded a grade of B+, on February, 2006. Now, in the second decade of the 21st century, the college stands tall, spreading the message of knowledge and wisdom to the society. Today, spread over an area of 25 Bigha, 5 Katha and 8 chatak, the college consists of 19 Academic Departments out of which 15 offer Honours & General courses, 4 General Courses and 1 P.G. Course in Zoology. In 1996, the total built up area of the college was 29,856 sq. ft. Another 14,755.31 sq. ft. was added between 2001 and 2004. Currently the total built area is around 70,000 sq. ft. which contains classrooms, laboratories, library, office, seminar halls, canteen, Gymnasium and students' hostels (separate for Boys and Girls).

The College in its second cycle accreditation by NAAC has improved its grade to B++ in 2016 which is a earmark to celebrate its Platinum Jubilee. The institute is now a RUSA 2.0 funded institute. One separate building with four Class rooms has been constructed and Girls Toilet has been renovated and extended with modern amenities. Additional Class rooms have been constructed with the grant from Higher Education Department, Govt. of West Bengal during last five years.

#### Location of the College

13

1

V

3

3

13

3

3

3

3

3

3

3

3

3

3

•

ううつうつ

2

Location of the College is College Para, Suri, Dist. Birbhum, Pin Code – 731 101.

## Communication and Transportation

The College is well connected from Bolpur & Burdwan station and by road. The College is located within 1 km from Suri station and 1km away from Suri (NBSTC) Bus stand. Distance from Suri College to Andal Airport is around 61.7 Kms.

### 2.4 Vision of the College:

 Our vision is to go ahead with confidence and courage to educate the students more and more with morality, nobility and magnanimity of soul removing all barriers to comprehensive education of good quality to serve society better. Our Vision: Wisdom, Sacrifice, Service

### 2.5 Mission of the College:

- The declared goals and objectives of Suri Vidyasagar College are: Wisdom, Self-Sacrifice and Social Service (Jnana, Tyaga, Seva) embedded in the Emblem of the college. The missions of the college are:
- Imparting Higher Education,

#### CHAPTER - 3

## GREEN AUDIT METHODOLOGY

### 3.1 Utility of Green Auditing

3

3

.9

.9

3

3

3

3

3

3

3

3

ۍ

3

3

3

•

3

9

2

2

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

13

V

Ð

V

3

3

0

13

-37

3

3

3

3

3

3

3

3

3

3

3

•

•

9

2

3

3

2

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, SURI VIDYASAGAR COLLEGE, WEST BENGAL

## 4.1 General overview of the concept of land use:

18

18

3

3

3

.5

3

3

3

3

3

3

3

3

3

3

3

3

3

9

9

2

3

2

2

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-II	
Level-I 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 Suri Vidyasagar College with a view to detect the land consumption in the built-up land area.

## LAND USE DATA OF COLLEGE OF SURI VIDYASAGAR COLLEGE

3.30
5.80
9.10

Ground coverage of 15.11% ( i.e 5615.80 sq metres) consists of the buildings.

#### FINDINGS:

•

Suri Vidyasagar 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 84.89% 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

U

3

1

3

3

3

3

3

3

3

3

э

3

3

2

9

•

9

2

2

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

Name & Address Of the Customer :	Report No. Date Sample No.	: QL5/M8/W/20-21/C/387 : 03.09.2020 : CL5/MR/W/20-21/387
M/s. Suri Vidyatagar College College Para, Suri, Birbhorn – 731 101.	Semple Description Sample Location Sample Drawn On Date of Performance	: Drinking Water :Aquaguerd Near Principal Diffice : 30,06.2020 : 10,06.2020-11.05.2020

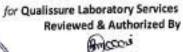
#### Analysis Result

#### (A) Microbiological Analysis

SL No.	Characteristic	Limit as per Drinking Water Standard : IS:10500, 2012Amd. 2	Test Method	Result
222.0		Not Detectable	15 15185-2016	Not Detected
1	Total Coliform Bacteria/100m1		15 15185: 2016	Not Detected
2	E.coli /100ml	Not Detectable	12 12 122 4040	

#### (B) Chemical Analysis

		Test Method		As per Drinking Water Standard : IS:10500, 2012Amd. 1 & 2		
51. No.	Test Parameter	Tels minute	Destrable Umit	Permissible Limit		
wa.		15 3025 (Part 11)- 1984 RA: 2012	6.5-8.5	No Relaxation	7.49	
1.	pH Value at 25°C	15 8025 (Part 11) 1984 84, 2012	1	5	<1.0	
2	Turbidity in NTU	IS 3025 (Part 10)- 1984 #A: 2012	500	2000	356	
3.	Total Otstalved Solids (TDS) in mg/l	IS 3025(Part 16)- 1984 RA: 2012	75	200	59.B	
4.	Calcium(as Ca) in mg/l	15 3025 (Part 11)- 1984 RA: 2012	and the second se	1000	94.7	
	Chloridelas Cl) in mg/l	15 3025 (Part 10)- 1984 RA: 2012	250	Contraction of the local division of the loc	0.21	
5.	Iron (as Fe) in mg/l	15 9025(Part 53)-1988 RA: 2014	1.0	No Relaxation		
б.	aron gas rey in mg/	IS 3025 (Part 46)-1994 RA: 2014	30	100	33.6	
7.	Magnesium(as Mg) in mg/l	15 3025 (Part 34)-1985 RA: 2014	45	No Relaxistion	<0.9	
8.	Nitrate (as NO <sub>3</sub> ) in mg/l	15 3025 (Part 26): 1986(RA 2014)	0.2	1.0	<0.1	
9	Free Residual Chlorine in mg/l	15 3025 (Part 24)-1986, RA: 2014	200	400	39.1	
10,	Sulphate (as SO <sub>d</sub> ) in mg/l	15 3025 (Part 23)- 1986, RA: 2014	200	600	192.0	
11	Alkalinity (as CaCO <sub>3</sub> ) in mg/l	15 50/25 (Part 25)* 1980, Not 2014	0.01	No Relaxation	<0.03	
12.	Total Arsenic(as As) in mg/l	IS 3025 (Part 37): 1988, RA 2014		the second s	286.8	
13.	Total Hardness (as CaCO <sub>2</sub> ) in mg/l	15 3025 (Part 21)-1983, RA: 2014	200	600	400.0	



(Benimadhab Goral) Authorized Signatory



## Drinking water facility at Suri Vidyasagar College

13

-3

3

5

-3

3

- 5

.9

3

3

3

3

3

3

3

•

2

The water that is utilised for drinking is clean and well-maintained.Six RO water filters have been built on our college campus to provide safe drinking water, two of which include chilling facilities. A solar energypowered water tank connection is available for emergency use at the Girls' Hostel and Quarter. Except for one or two instances, no water is lost during the survey as a result of leaks or overflow from overhead tanks. Moreover water is released from each water reservoir regularly and cleaned at regular interval to maintain the hygiene of the tank.



### Fig. 1 : Drinking water facility of the College

(A) Water source for Gardening, (B) Tubewell, (C-D) Water filter with basin, (E) Small pump for drinking water, (F) Meters in Pump House, (G-H) Water Cooler with purifier, (I-J) Solar power-driven water pump with tank.

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

#### TEST REPORT

Name & Address Of the Customer :	Report No.	: QLS/MR/W/20-21/C/388
	Date	: 03.09.2020
	Sample No.	: QLS/MR/W/20-21/388
M/s. Suri Vidyasagar College	Sample Description	: Waste Water
College Para, Suri, Birbhum - 731 101.	Sample Location	:Near Canteen Main Drain
	Sample Drawn On	: 10.08.2020
	Date of Performance	: 10.08.2020-11.08.2020

#### Analysis Result

si.		1000000000	1020120	Limit as per CPCB for discharge of effluents	
No.	Parameter	TEST METHOD	Result	Inland Surface Water	Public Sewers
1	pH at 25°C	APHA 23 <sup>rd</sup> Edition-2017, 4500 H+	7.19	5.5 to 9.0	5.5 to 9.0
z	Total Suspended Solid in mg/l	APHA 23 <sup>rd</sup> Edition-2017, 2540 D	16	100	600
з	Chemical Oxygen Demand (as COD) mg/l	APHA 23 <sup>rd</sup> Edition-2017, 52208	29	250	-
4	Biochemical Oxygen Demand (as BOD) mg/l	IS 3025 (Part 44)-1993, RA:2014	16	30	350
5	Oil & Grease in mg/l	APHA 23 <sup>nd</sup> Edition-2017, 5520A	<2.1	10	20

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

Sony

AenC

Anacoi

(Benimadhab Gorai) **Authorized Signatory** 

#### CHAPTER-6

AMBIENT AIR QUALITY ASSESSMENT AND MANAGEMENT

## 6.1 Air Quality Test Report

3

10

U

U

U

3

3

3

3

3

3

3

3

3

3

3

3

3

3

3

3

•

•

•

•

•

2

2

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

#### TEST REPORT

Name & Address Of the Customer : M/s. Suri Vidyatagar College College Para, Suri, Birbhum - 731 101.	Report No: Dana Sample No. Sample Description Sample Mark	= QLS/MR/A/20-21/C/513 =03.09.2020 = QLS/MR/A/20-21/513 = Ambient Air = Near Principal Room
------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------

### Analysis Result

Locati	ion : Near Principal Room			08.2020-11.08.2020
	ing Dane by: B.Mondal		Sampling done as pe	r : CPCB Guidelines (Volume-1)
-32	onmental Condition: Cloudy		Average Temperatur	e : 30°C
	netric Pressure : 752 mm of Hg		Average Humidity	: 66%
SL. No.	Pollutants	Result	Limit as per CPCB	Method of Test Reference
1	Farticulate matter (<10µm) in µg/m <sup>2</sup>	68	100	IS: 5182 (Part-23), 84-2017
2	Particulate matter (<2.5µm) in µg/m <sup>8</sup>	32	60	USEPA CFR-40, Part-50, Appendix-
3	Sulphur dioxide (SO <sub>2</sub> ) in up/m <sup>3</sup>	6.4	50	15: 5182 (Part-2)-2001, RA-2017
4	Nitrogen dideide (NO <sub>2</sub> ) in µg/m <sup>3</sup>	23.6	80	IS: 5182 (Part-6)-2006, RA-2017
5	Carbon Monoxide (CO) in µg/m <sup>2</sup>	621	2000	(5: 5182 (Part-10):1999,RA-2014



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

(Benimadhab Gorai) Authorized Signatory

#### AMBIENT AIR TEST REPORT

13

U

U

V

3

3

3

3

3

3

3

3

3

3

3

3

3

3

3

3

3

3

•

•

3

•

2

2

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

#### TEST REPORT

 Name & Address Of the Customer :
 Report No.
 : OLS/MR/A/20-21/C/514

 M/s. Suri Vidyasagar College
 Date
 :03.09.2020

 M/s. Suri Vidyasagar College
 Sample No.
 : OLS/MR/A/20-21/514

 College Para, Suri, Birbhum - 731 101.
 Sample Description
 : Ambient Air

 Sample Mark
 : Near Teacher's Room

### Analysis Result

locati	on : Near Teacher's Room		Date of sampling : 10	08.2020-11.08.2020
Samp	ing Done by: B.Mondal		Sampling done as per	: CPCB Guidelines (Volume-1)
	Inmental Condition: Cloudy		Average Temperature	e : 30°C
haron	etric Pressure : 752 mm of Hg		Average Humidity	: 66%
51. No.	Pollutants	Result	Limit as per CPCB	Method of Test Reference
1	Particulate matter (<10µm) in µg/m <sup>3</sup>	82	100	15: 5182 (Part-23), RA-2017
2	Particulate matter (<2.5µm) in µg/m <sup>1</sup>	43	60	USEPA CFR-40, Parts-50, Appendix-
3	Sulphur disxide (SO:) in µg/m <sup>2</sup>	6.8	80	(5: 5182 (Part-2)-2001, RA-2017
4	Ntrogen dioxide (NO <sub>2</sub> ) in µg/m <sup>3</sup>	24.9	80	15: 5182 (Part-6)-2006, RA-2017
5	Carbon Monoxide (CO) in µg/m <sup>3</sup>	659	2000	IS: 5182 (Part-10):1999,RA-2014



for Qualissure Laboratory Services Reviewed & Authorized By Bolecoui

(Benimadhab Gorai) Authorized Signatory

#### CHAPTER-7

#### NOISE MONITORING

## 7.1 Ambient Noise Monitoring Status:

3

18

3

U

3

3

3

3

3

3

3

3

3

3

3

3

3

Э

•

3

•

ہ ہ

•

• •

2

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

#### TEST REPORT

		: OLS/MR/A/20-21/C/614
Name & Address Of the Customer :	Report No.	CC Shared at the state of the
Henry Brown and Provide State	Date	09.09.2020
to the state of th	10000	- OLS/MII/A/20-21/814
M/s. Suri Vidyasagar College	Sample No.	- Christian Area was and
College Para, Suri, Birbhum - 731 101.	Sample Description	Ambient Noise
+		

Sampling (	Suideline : As per IS:	9876: 1981 (RA-2001)		
Sample No.	Date of Monitoring	Lecution	Leg dB (A) Day Time	Leq dB (A) Night Time
811	10 - 11,08.2020	Near Principal Room	55.7	44.9

Code/ Category	Leg dB (A)Day Time	Leg d3 (A)Night Time	<u>NOTE:</u> Day Time : 06.00 Hr. – 22.00 Hr. Night Time : 22.00 Hr. – 06.00 Hr.
A/Industrial	75	70	
8/Commercial	65	55	
C/Nesidential	55	45	
DyEcological Sensitive	50	40	



for Qualissure Laboratory Services Reviewed & Authorized By

> (Benimadhab Gorai) Authorized Signatory

#### CHAPTER - 8

### RAIN WATER HARVESTING SYSTEM

The primary goal of rain water harvesting at Suri Vidyasagar College Campus is to raise ground water levels by collecting and storing rain water from roof top run-off. The College lies in a semi-arid and sub-humid zone. The campus'ss oil is lateritic in nature. The soil is exceptionally porous and has a high capacity for in filtration. In our campus rain water harvesting system has been installed at Aurobinda Bhavana. The roof runoff water is collected through network of pipe lines and store it within two large tanks situated at ground level in front of Aurobinda Bhavana. This stored rainwater is used for cleaning and gardening purpose.



u

13

U

3

3

3

3

3

3

3

3

3

3

3

3

3

3

3

Э

•

9

3

roof top of Aurobinda Bhavana

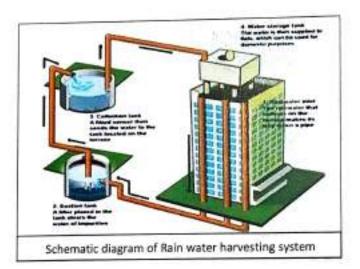


Fig. 2 : Rain Water Harvesting System

#### CHAPTER - 9

# ELECTRICITY CONSUMPTION (IN UNIT) AND MANAGEMENT

#### 9.1 General Details:

V

Э

,,,,,,,

SLNo.	PARTICULARS	DETAI	LS	
1	Name & Address of College	Suri Vidyasagar College College Para, Suri, Birbh	um West Bengal-731101	
	Web Site	https://surividyasagarcoll	ege.org.in	
2	Name of Contact Officer	Dr. Tapan Kumar Parichi	ha	
	Designation	Principal		
	Name of Alternative Officer	Dr. Soumya Ranjan Bhattacharyya		
	Designation	IQAC-Coordinator		
3	Telephone No. Mobile No.	NA 9830829832		
	Fax No. e-mail ID	svctkp@gmail.com		
	No. of shift (Morning & Day)	7am to 5pm 105		
	No. of Employees (Approx)			
4	Electricity Consumption	Imported (Purchased) 4439		
	Specific Energy Consumption	Fuel	Electricity	
5	Specific Energy Consumption	656/-	Rs. 59,139/- (Per (month)	
6	LPD	1,848/-		
7	EPI	0.22		

## 9.2 Electrical Details

### a) Transformers

,

•

?

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

## b) Electricity Consumption

Particulars	Demand	
Farticulars	10.07	
Contract demand KVA	18.27	
 Maximum demand	.17.99	
and a second	53274	
Total Energy units consumed / year		
 Avg. Power Factor(P.F.)	0.97	
	Rs.59,139/-	
Avg. Energy bills(Rs/month)	the state of the s	

# c) Detailed list of Electric Motors operating in the college

S.NO.	NAME OF THE PLANT	RATING OF MOTOR (KW)	NO. OF MOTORS
	o 116 to see our College	3.34	4 nos.
1	Suri Vidyasagar College, Suri, Birbhum	1.200	

## d) Connected Load

Э

•

?

•

.

	EQUIPMENT	TOTAL NUMBE RS	LOAD IN KW (TOTAL)
Λ	Motors : Greater than 10kW	NIL	NIL
1990	: Less than 10 kW	4Nos.	3.34 KW
в	AC & Ventilation with TR capacity	( #	
a)	Others (Package ACs/ Split ACs / Windows ACs) with TR	Room AC of Split/Window type – 50.99	
с	Total Process Load (in kW)	54.33 KW	
D	Total Lighting Load (in kW) & Luminaries details	(LED+T/L+ Tube Light, I etc.= 27.06 K	ting luminaries (including fan Led Light, W - 46.38 KW
-	Total Load (in kW)	127.77 KW	

ç

### A. Lux Measurements :

U

U

,

•

•

,

,

,

-2-16		LUX level	Remarks
Sl.no.	Room		
1.	Arabinda Bhavan	201 201 201 208	
+	Ground Floor	302,301,301,298,298	
	1 <sup>st</sup> floor	303,305,302,305,304	
	2 <sup>st</sup> floor	300,303,306,312,305	
2	Rabindra Bhavan	200 200 201	
2	Ground Floor	306,305,303,297,301	
	1 <sup>#</sup> floor	305,302,299,304,308	
3	Auditorium (New hall)	201 202 202	
3	Ground Floor	299,304,306,302,307	
4	Gandhi Bhavan	12 200 200	
+	Ground Floor	305,306,305,298,299	
	1 <sup>st</sup> floor	308,306,302,301,304	
-	Vivekananda Bhavan		
5	Ground Floor	304,306,306,310,303	
-	1 <sup>u</sup> floor	299,300,304,307,305	
-	Humanities Building	-	
6	Ground Floor	305,304,312,309,304	
	L <sup>st</sup> floor	303,300,307,309,303	
	Administrative Building		
7	Ground Floor	303,311,314,302,306	
	the second se	311,308,314,302,309	
	l <sup>a</sup> floor Rabindra Chatravas		
8		300,302,303,299,307	
	Ground Floor	302,305,304,300,307	
	1" floor		
9	Mrinalini Chatriniwas	301,303,308,304,307	
	Ground Floor	302,304,309,301,305	
	1" floor	A A REAL PROPERTY AND A RE	
10	Micro Biology	309,308,304,303,304	
	Ground Floor	301,303,302,304,305	
	l" floor	and beaution of the state	
11	NSOU Building	312,308,309,303,304	
	Ground Floor	308,311,304,306,308	
	1 <sup>p</sup> floor	200,011,000,000,000	
12	RUSA	303,302,304,309,307	
	Ground Floor	303,302,304,309,305	
	1 <sup>s</sup> floor	303,300,304,406,300	

## Illumination Level Comparison

-37

-13

,

,

>

,

,

mination better	the transformed	NBC Recommended
Area	Average Lighting Level (LUX)	
Contraction of the second second		300-500
Arabinda Bhavan	303	300
Rabindra Bhayan	303	300
Auditorium (New hall)	303	300
Gandhi Bhayan	303	300
Vivekananda Bhavan	304	300
Humanities Building	305	
Administrative Building	308	300
	302	300
Rabindra Chatravas	and the second se	300
Mrinalini Chatriniwas	304	300
Micro Biology	304	300
NSOU Building	307	300
RUSA	305	500

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

1.1

The institute has taken an important step for reduction in pollution level by installation of solar panel and photo voltaic cell for generating electricity.

For reducing carbon emission, and dependence on fossil fuel, the institution has resorted to using green energy by harnessing solar power.

Generated power is transferred to the grid.

This helps in reducing carbon emission.



Fig. 3 : Solar System

## 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

40

43

13

U

63

3

3

3

3

3

3

3

Э

3

3

.)

Э

3

3

3

9

.

.

3

0

Suri Vidyasagar College has set up separate bins to ensure proper segregation and collection of the biodegradable, non-biodegradable and hazarders 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, which and brown papers, batteries, print cartridges, cardboard, furniture, damage pen, carbon papers etc are either sold to vendors for recycling or despatch via municipality disposal van in regular basis. The biodegradable waste such as humas, rest portion of vegetables etc. which are used in college canteen, Staff quarters and Boys' and Girls' hostels are used for preparing bio fertilizers.

Vermi compost units are observed near New Hall for fertilizers also. College has developed few good practices, such as single sided used papers are reused for writing and printing in all the departments to minimize the usage of papers. Very less plastic waste (0.1Kg/day) is generated by some departments, office, garden etc and campus is declared as Plastic Free zone. Metal waste and wooden waste is stored and sent to authorize scrap agents for further processing. Glass bottles are reused in the laboratories.



-3

و و

-

Fig. 4 : Waste Management in the college campus

(A) Dustbin for solid and liquid waste, (B) Large dustbin for solid non-biodegradable waste product; (C) Reservoir for Solid bio-degradable waste product; (D) Vermi compost units (E) Disposed of waste product storage bags carrying van from Suri municipality by NCC.

#### 10.2 Liquid Waste

-3

.)

•

.

.

The source of wastewater is Domestic Waste Water i.e., Sewage water. The Sewage water mainly comes from laboratory of different departments, toilets of college, hostel, kitchen and canteen. Those waters are used for gardening purpose.

### 10.3 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.

E-Waste is accumulated in a separate room, stock of such waste as on date is quite substantial.

## CHAPTER - 11

# BIODIVERSITY STATUS OF THE COLLEGE CAMPUS

# 11.1 Introduction

18

10

in

10

10

10

10

10

10

3

3

3

1

3

3

3

.)

3

3

. 3

3

3

,

.

3

9

2

2

Suri Vidyasagar College campus is very rich in the term of 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 biodiversity of an area so that the local people can be aware of the richness of biodiversity 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 vegetations.
- 2. Documentation of the major faunal groups like mammals, reptiles, amphibians, birds and among the insects, butterflies and dragonflies.
- Documentation of the specific interdependence of floral and faunal life.

40

#### Survey Area

-

6.1

.

•

.

.

The green area of Suri Vidyasagar College covers approximately 3.96 acres out of 9.18 acres, which is about 43.15 percent of the total area, and is strategically distributed across different sections of the campus. The green spaces include gardens, courtyards, an open field, and a play ground, providing ample opportunities for relaxation, outdoor activities, and study in a natural setting.

### Location Map

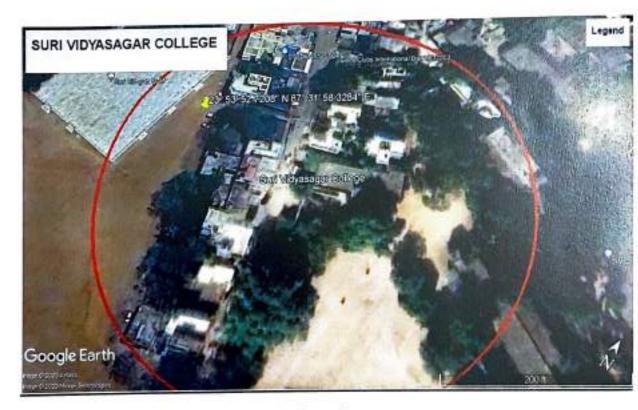


Fig. 5 : Location map

# 11.3 Method of Study

0

0

3

-

2

2

0)

0

2

13

3

3

3

3

3

00

.)

3

3

. >

3

)

)

3

2

3

3

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

42

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.

.

h

- 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.

(A

S

S

.9

,

?

?

Suri Vidyasagar College premises having about 39.54 acres of land have unique plant diversities. These include flowering plants, leafy trees, medicinal herbs and innumerable wild bushes.

These plants are listed and depicted as following:

कुम्फिक्ट्रियां Performs region (Hojer ex Hook.) Raf Family, Fahaceae, Cludy, Results	याल्लसमाठि Cissio famila L Family: Pabacene: Clade Rossida	(बिल्फीडोवि Senior assure (Lans.) (LS Trwin&Bornels Franky: Pahacete, Cludg. Rossis
(মহণানি Smeazarcanohaganu(1.)-locy. Family: Meliaceae, Chair: Rosida	জনকচুড়া Pelaphorampterocorposi(DC-) Backet ex K. Beyto Family, Fabaceae: Clade: Resids	বকুশ Manasepselongs L. Family: Supotacetic, Cludie: Antends
1978 Dadhergan stranouRoyde yn DC. Fanniy: Fabrocow, Clinder Rossidh	गितिय Affress Jobbeck(), ) Beath Paraily: Pobaceae, Clude: Rusida	(পর্বদার্জ Atmountung)faluur (Sonn.) B. Xue & R.M.K. Saunders Furnity: Annonacene; Clude: Magnoliuls
बाहि Curanitai epitonffillin L. Family: Caseninecene: Clude: Rosids	<b>फालिम</b> AlatomizeAstavis (L.) R.Br. Family: Apocymeene, Clude: Asterids	सिम Azadrachas index A. Juss Family: Maliacenc: Clade: Rosids
ইউকালিগড়াস Ewolypin Internation Sm. Landt: Menacenc Chale Resids	(위원ল Tecrowa growdistE Franky: Lamineene, Clade, Asterids	व <b>र्डे</b> Fiew benghalensu I. <u>Pamily: Moraceue, C'ada: Rossids</u>
गकु मिल्ला vinces/Non Faces vinces/Non Faces vinces/Non Faces vinces/Non	কাসে Mongdem molece L. Family: Anacardineeae, Clada: Rosids	ন্তান Borazau Jabellyler L. Family: Arcencese; Clude, Commelitude
পরেমেন সেলন Anna Anna (Jacob) Kunth	6/22/01 Tecowa atawa (L.) Juss. ew Konth Family - Bignoniavene, Clude: Asterids	ศารกุศาสน CastospitagianeensizAubi Family: Lecythidacese; Clade: Asterida
বেল Family Fabacene, Clude Rosids বেল Aegle sommelies (L. I Correa Family: Rumeese, Clude, Rusids	কাঠ-যানাম Terminalia catappo L. Family: Confectureae: Clade: Resida	Ach MarindacaresaBuch-Ham Family: Rubisceae, Clude: Astends
Kurchi HalarzhempubercensWall, ex G Den Family: Apocymeeze; Clade: Astorida		

# List of the Major Plants of the Garden



S.

J.

J

S

\$

3 3

, , ,

,

,

,

Fig. 6 : Major plants in the campus area

# 11.5 Medicinal Plants in the Campus:

- P

i in 

Eq. 

14. 

J

,

?

.....

A number of plants with medicinal properties are growing in the campus, specially in the medicinal plant garden.

. 1	Common Name	Scientific name	Uses Couth, colds, asthma, bronchodilator Couth, colds, asthma, bronchodilator
0.		and a started a	Couth, colds, asthma, clone stimulant activity.
	Basak	Justicia adhatoda	Anti inflammatory and deal
	Apang	Achyranthes aspera Linn.	rheumatism, Hydrophoene in improves liver
Ţ	Kalmech	Andrographis paniculata (Burm.1.)	function, Leaves - most - given to children to losss of appetite; roots - given to children to cure general debility.
4	Harjora	Cissus quadrangularis Linn. Syn. Vitis quadrangularis	Leaves – in bowel complaints, start to de scurvy, irregular menstruation, asthma, sap applied externally on forehead to cure one- sided headache. Fruits – treat vomiting, leprosy, piles, anaemia;
	Amlaki	Emblica officeinalis Gaertn	leaves - in opninaima.
5	Ramtulsi	Ocimum gratissimum Linn.	Leaves - Decocition of the soaked in water and septic wounds, Seeds - soaked in water and
	Jaba	Hibiscus rosasinensis Linn.	Flowers - In black coothing, used in growth of disease; leaves - soothing, used in growth of
7	Japa		hair, Roots - In cord, humion sensation
8	Telakucha	Coccinia grandis (Linn.) Voigt	of hands and reet, cearco
			A Loof English and Secu
	a hereadha	Wythania somnifera	Bark, Root, Leaf, Latex, Flower
9	Arshagandha	Colotopics adigantee	Whole Plants
10		Eupatorium triplinerve	Leaf
11	Ayapan	Ocimum sanctum	Root, Leaf, Fruit
12	Tulsi	Murraya koenigii	
13	Kari pata	Barleria lupulina	Leaf
14	Bisallakaroni	Hygrophila schulli	Whole plant
15	Kulephara	Gymnema sylvestre	Root, Leaf, Fruit
16	Gurmar	Aloe vera	Leaf
1	Grikuman	Cantella asiatica	Leaf
10	and the second se	Catharanthus roseus	Whole Plants Bark, Leaf, Yound Stem, Unripedfult, Seed O
1	and the second se	Azadirachta indica	Bark, Leaf, Yound Stern, Chilpert
2	and the second se	Azadiracina indico	Leafd, Flower, Bark, Root
2		Adhatoda vasika	Leaf Dies and Unriped
	and the hearing	Gendarussa Vulgaris	Leaf Root, Young Leaf, Flower, Ripe and Unriped
	2 Bisliakarain 3 Bel	Asgle marmelos	Fruit
1	3 00	a Raunollia serpentina	Leaf
-	4 Sarpagan Jha	Marsilea minuta	Whole Plant
	5 Sughni	INTER STORE FIRST STORE	Root, Leaf, Bardk, Stern
1.1	6 Karabi	Nerium odorum	Whole Plant, Leaf, Seed
	27 Black Tulsi	Ocimum tenuiflorum	Root
	28 Muthagrass	Cyperus rotundus	



> > >

-

•

1. Heliotropium indicum



3. Gymnema sylvestre



5. Asystasia gangetica



MEDICINAL GARDEN



6. Hygrophila spinosa



2. Impatiens balsamina



4. Pergularia daemia



7. Anisomeles indica



8. Hyptis suaveolens



9. Leonotis nepetifolia





10. Leucas cephalotes



11. Martynia annua



12. Vitex negundo



13. Clerodendrum viscosum



14. Evolvulus alsinoides



15. Ipomoea pes-tigridis



16. Operculina turpethum



17. Euphorbia tirucalli



18. Ricinus communis

# Fig. 7 : Medicinal plants

# 11.6 Checklist of Reptiles:

,

•

SI. No.	Common name	Scientific Name	Bengali Name
1	Checkered Keelback	Xenochrophis piscator	Joldhora
2	Buff Striped Keelback	Amphiesma stolatum	Hele
2 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. 8 : Reptiles

# 11.7 Checklist of Birds:

V

.

J

-3

•

,

-

•

?

A total of 63 types of bird species were found in the campus, which is quite a good number, in spite of the industrialized surrounding around it. who college campus.

	Total bird species encountered i	Scientific Name
SI. No.	Common Name	Phalacrocorax fuscicallis
1	Indian cormorant	Microcarbo niger
2	Little cormorant	Egretta garzetta
3	Little Egret	Bubulcus ibis
4	Cattle Egtet	Milvus migrans
5	Black Kite	Elanus axillaris
6	Black shouldered kite	Falco tinnunculus
7	Common kestrel	Accipiter badius
8		Amaurornis phaenicurus
9	Shikra White breasted water hen	Ardeola grayii
10	Pond Heron	Actitis hypoleucos
	Common sandpiper	Treron phoenicoptero
11	Yellow Footed Green pigeon	Columba livia
12		Spilopelia chinesis
13	Rock pigeon	Streptopelia capicola
14	Spotted dove	Psittacula eupatria
15	Ring necked dove Alexandrian parakeet	Cuculus canorus
16	Alexandrian barancer	Athene brama
17	Common Cuckoo	Athene brutto Halcyon smyrnensis
18	Spotted Owlet	
19	White throated Kingfisher	Alcedo atthis
20	Small blue Kingfisher	Pelargopsis capensis
21	Stork billed Kingfisher	Ceryle rudis
22	Pied Kingfisher	Upupa epops
23	Common Hoopbe	Merops leschenaulti
24	Chestnut headed Bee-eater	Merops orientalis
25	Green Bee-eater	Dinopium bengholense
26	Black-rumped Flameback	Yungipicus nanus
27	Brown-capped Pygmy Woodpecker	Megalaima haemacephala
28	Coppersmith Barbet	Megalaima asiatica
29	Blue throated Barbet	

		Scientific Name
SI. No.	Common Name	Megalaima lineata
30	Lingated Barbet	Dendracopos nanus
31	Brown-capped Woodpecker	Lanius cristatus
32	Brown Shrike	Lanius schach
33	Long tailed Shrike	Passer domesticus
34	House Sparrow	Oriolus xanthornus
35	Black hooded Oriole	Orious oriolus
36	Golden Oriole	Dicrurus macrocercus
37	Black Drongo	Dicrurus aeneus
38	Bronze winged Drongo	Acridotheres tristis
39	Common Myna	Gracupica conta
40	Asian pied Starling	Sturnia malabarica
41	Chestnut tailed Starling	Acridotheres fuscus
42	Jungle Myna	Dendrocitta vagabunda
43	Rufous Treeple	Corvus brachyrhynchos
44	Common Crow	Pycnonotus cafer
45	Red vented Bulbul	Pycnonotus jocosus
46	Red whiskered Bulbul	Prinia inornata
40	Common Prinia	Prinia socialis
47	Ashy Prinia	Turdoides caudata
40	Common Babbler	Muscicapa muttui
49 50	Brown breasted Flycatcher	Ficedula albicilla
50	Taiga Flycatcher	Orthotomus sutorius
- SST-1-	Tailorbird	Luscinia svecica
52	Bluethroat	Saxicola caprata
53	Pied Bushchat	Consychus saularis
54	Oriental Magpie robin	Dicaeum erythrorhynchos
55	i mi u arnorket	Motacilla alba
56	and head	Motacilla alba
57		Motacilla flava
58		Motacilla citreola
59		Leptocoma zeylonica
60	and Suphird	Ionchura punctulata
61	Purple rumped sur	Rhipidura albicollis.
62	Silver billed Munia White throated Fantail	Ringhiden a direct

F

B

J

\$

B

a

.

,

-

?



.

F

U

U

V

J

.)

,

•

?

Fig. 9 : Local Birds

11.8	Checklist	of	Mammals:
------	-----------	----	----------

Ù

U

U

U

U

0

U

0

U

J

3

3

3

3

3

.)

.)

3

3

3

3

3

•

9

•

•

2

CI Ma	Common name	Scientific name	Bengali name
SI. No. 1	indian palm squirrel	funumbulus sp.	Kathberali
2	irugivorous bat	suborder megachiroptera	Badur
3	insectivorus bat	suborder microchiroptera	Charnchike
1	house mouse	mus musculus	Indur
5	rat	rattus norvegicus	Dhere indur



Fig. 10 : Mammals

SI.	Local Name	Common Name	Scientific Name
No.	Bird-nest-Fern	Bird-nest Fern	Asplenium sp.
1.	and the second se		
2. 3.	Fern sp. Fishtail Fern	Fishtail Fern	Microsorum punctatum
	C. Hard Form	Oakleat Fern	Drynaria quercifolia
4.	Oakleaf Fern	Dog flower, Snapdragon	Antirrhinum majus
5.	Dog flower, Snadragon	Garden stock, Common stock	Matthiola incana
6.	Garden stock, Common stock		
7.	Gazania	Gazania	Gazania sp.
3.	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.
10	Pansy, Garden Pansy	Pansy, Garden Pansy	Viola tricolor var.
12.	a design of the second s	Petunia	Petunia hybrid
13.	Petunia Verbena	Verbena	Verbena sp.

# 11.09 Checklist of Ferns and Seasonal Flowers



11

U

U

Ü

U

U

3

0

3

3

3

3

3

.)

3

3

3

3

9

9

,

-

• •









Fig. 11 : Flower of the college premises

## CHAPTER - 12

# GREEN INITIATIVES

Suri Vidyasagar 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

18

0

13

0

13

.

0

0

3

.

1

1

3

3

3

.)

.

3

3

3

3

3

•

,

-

•

1

Plantation programme of Suri Vidyasagar College promotes environment management and conservation in the college campus with the following objectives:

- To motivate the students to keep their surroundings green
- and clean by undertaking plantation of trees. i)
- Promote ethos of conservation of water by minimizing the use of ii) water.
  - Motivate students to imbibe habits and life style for minimum waste
- generation, source separation of waste and disposing the waste to (iii) the nearest storage points.
- To create awareness amongst public and sanitary workers, so as to
- stop the indiscriminate burning of waste which causes respiratory iv) diseases.
- To minimize the use of plastic bags, not to throw the min public places as they choke drains and sewers, cause water logging and V) provide breeding ground for mosquitoes.
- Organize tree plantation programmes, awareness programmes such as Quiz, essay, painting competitions, rallys, nukkad natak etc. vi) regarding various environmental issues and educate children about re-use of waste material & preparation of products out of waste
- Organize Nature Trail in Wild Life Sanctuaries/Parks/Forest are as to vii) know about the Bio-diversity.







Tree plantation

Observation and examined by respected Principal sir and internal expert team



Viva-voce by respected Principal sir and internal expert faculty members Planted trees in Medicinal Gardenof Suri Vidyasagar College

## Fig. 12 : Plantation programme

# 12.2 Green computing practice

18

0

()

1

0

Ð

10

.)

3

3

3

Э

3

9

3

•

9

•

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<sub>2</sub>. 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. Suri Vidyasagar 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. Suri Vidyasagar Colleges hold 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.

## 13.1 Preparation of Action Plan

ω

ũ

.)

,

,

?

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

1

0

0

0

10

0

0

•

1.3

100

0

U)

3

3

3

3

.)

3

3

3

3

9

•

•

•

1)

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.

- 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.

#### 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

v

1)

13

U

0

0

U

G

1)

3

J

3

3

3

3

3

3

3

3

- 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:

۱)

6

0

1)

...

1.3

•)

3

3

3

.

3

.)

3

3

3

3

3

9

9

?

?

- a) Declare the campus plastic free and implement it thoroughly.
- Avoid plastic/thermocol plates and cups in the college level or department level functions.
- Noise level monitoring shall be done as per the guideline of "Noise Pollution (Regulation and Control) Rules '2000'.
  - The Biodiversity is to be maintained whole considering the plantation in future.
  - Awarness among students and staff about green environment shall be done use tools like display boards.
  - f) The surroundings of the College should be keep clean.
  - g) Exhaust Gas shall be monitored, analysed and check regularly
  - h) Medicinal Garden should be keep clean
  - i) Parking zone of college shall be neat & clean
  - Fire Extinguisher calibration should be done before the expiry date of calibration.
  - k) World Environment Day to be celebrated in college premises every year on 5th 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.
  - Awareness among students and staff about green environment shall be done use tools like display boards.
  - m) Replace incandescent and CFL lamps with LED light
  - n) Replace LCD computer monitors with LED monitors
  - Installation of sensor-based electrification items like fans, lights, etc. can save electricity
  - p) Regular checkups and maintenance of pipes, overhead tanks, and plumbing systems should be done by the engineering section to reduce overflow, leakages, and corrosions.

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

# 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.

Our special word thanks are extended to:

6

0

...

1)

1

J

3

3

3

3

•

2

9

1.3

- Dr. Tapan Kumar Parichha Principal
- 2. Dr. Soumya Ranjan Bhattacharyya Associate Professor, Dept. of Physics, & Co-ordinator of 1QAC
- 3. Dr. Anirban Paul Assistant Professor of Botany & Convenor, Green Audit Team
- Dr. Sujoy Das Assistant Professor of Mathematics
- 5. Dr. Hemanta Saha Assistant Professor of Botany & A.N.O., NCC
- 6. Dr. Tanmoy Mandal Assistant Professor of Plant Protection & P.O., NSS
- Sri Pankaj Roy Assistant Professor of Chemistry
- 8. Sri Shamim Alam Assistant Professor of Botany
- Sri Ranajit Ghosh State Aided College Teacher of Geography
- 10. Sri Subhas Chandra Mondal Accountant

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

eas Elizad Environment & Ecology Put. Eld. Parimal Director

#### SONAR BHARAT ENVIRONMENT & ECOLOGY (P) LIMITED

Registered Office: Flat No. 1A N368, Baishnabghata Patuli, Kolkata -700 094 Head Office: 35, Chitaranjan Avenue, 3<sup>d</sup> Floor Kolkata - 700012 Phone : (91-33) 2211 – 3034/0397, 033 4003 1179, E-mail : <u>sonarbharat2010@qmail.com</u> <u>sonarbharat2017@qmail.com</u>

Date: 25.09.2020

#### **GREEN AUDIT CERTIFICATE**

- Name of Work Project : Green Audit of Suri Vidyasagar College
   College Para, Suri, Dist. Birbhum, West Bengal 731 101.
- Duration of Audit : 27.08.2020 to 28.08.2020
- Period of Audit : 2019-2020
- Sonar Bharat Environment & Ecology Pvt. Ltd. has conducted Green Audit in the campus of Suri Vidyasagar College, College Para, Suri, Dist. Birbhum, West Bengal – 731 101.
- With the cooperation of faculty members and other staff audit has been successfully completed.

Barrel

Subrata Desarkar (Auditor)



Parunal Sarkan

Parimal Sarkar (Director)

## SONAR BHARAT ENVIRONMENT & ECOLOGY (P) LIMITED

Registered Office: Flat No. 1A N368, Baishnabghata Patuli, Kolkata -700 094 Head Office: 35, Chitaranjan Avenue, 3<sup>of</sup> Fioor Kolkata - 700012 Phone : (91-33) 2211 – 3034/0397, 033 4003 1179, E-mail : <u>sonarbharat2010@qmail.com</u> <u>sonarbharat2017@qmail.com</u>

Date: 18.09.2020

#### ENERGY AUDIT CERTIFICATE

Name of Work Project

Energy Audit of Suri Vidyasagar College
 College Para, Suri, Dist. Birbhum, West Bengal – 731 101.

- Duration of Audit : 12.08.2020 to 13.08.2020
- Period of Audit : 2019-2020
- Sonar Bharat Environment & Ecology Pvt. Ltd. has conducted Energy Audit in the campus of Suri Vidyasagar College, College Para, Suri, Dist. Birbhum, West Bengal – 731 101.
- With the cooperation of faculty members and other staff audit has been successfully completed.

Susa Majumbor

Suvra Majumda: BEE-EA-5723, AEA-221 Chartered Engineer (India) – Electrical Engineering Div.

Sonar Bharal Environment & Ecology Pvt. Ltd. Parimal Sarkar

> Director Parimal Sarkar (Director)

# SONAR BHARAT ENVIRONMENT & ECOLOGY (P) LIMITED

Registered Office: Flat No. 1A N368, Baishnabghata Patuli, Kolkata -700 094 Head Office: 35 Chitaranjan Avenue, 3" Floor Kolkata - 700012 Phone : (91-33) 2211 -- 3034/0397, 033 4003 1179, E-mail : <u>sonarbharat2010@gmail.com</u> sonarbharat2017@gmail.com

Date: 03.09.2020

#### ENVIRONMENTAL MONITORING CERTIFICATE

 Name of Work Project : Environmental Monitoring of Suri Vidyasagar College College Para, Suri, Dist. Birbhum, West Bengal – 731 101.

- Duration of Audit : 10.08.2020 to 11.08.2020
- Period of Audit : 2019-2020
- Sonar Bharat Environment & Ecology Pvt. Ltd. has conducted Environmental Monitoring in the campus of Suri Vidyasagar College, College Para, Suri, Dist. Birbhum, West Bengal – 731 101.
- With the cooperation of faculty members and other staff audit has been successfully completed.

Barral

Subrata Desarkar (Auditor)

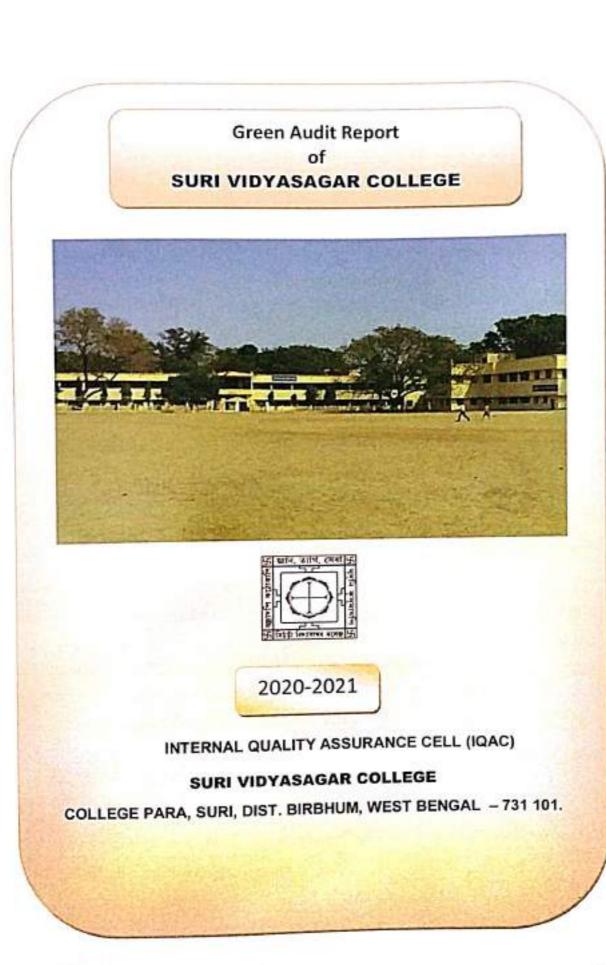


Parinal Sarkan

Parimal Sarkar (Director)

# THE END

1)



3

)

þ

)

)

)

)

2

2

3

# CONTENT

ł

ŧ

i.

CHAPTER NO.	TITLE	PAGE NUMBER
CHAPTER NO.	Executive Summary	05-05
CHAPTER - 1	Introduction	06-14
1.1	Green Audit	
1.2	Why Green Audit	
1.3	Goals of Green Audit	
1.4	Objective of Green Audit	
1.5	About criteria 7 of NAAC	
1.6	Benefit of Green Audit on Educational Institute	
1.7	Introduction of Auditing Firm	
1.8	List of Instrument Energy Audit	
1.9	List of Laboratory Equipments for Environmental Monitoring	
1.10	List of Field Equipments in Environment Department	
1.11	General Steps involved in Green Audit	
CHAPTER - 2	Suri Vidyasagar College	15-19
2.1	About the College	
2.2	Introduction	
2.3	History of the College	
2.4	Vision of the College	
2.5	Mission of the College	
CHAPTER - 3	Green Audit Methodology	20-21
3.1	Utility of Green Audit	
3.2	Objectives of the study	
3.3	Methodology	
CHAPTER - 4	Land Use Analysis	22-23
4.1	General overview of the concept of land use	-
4.2	Methodology adopted for land use mapping	
CHAPTER - 5	Water Quality Assessment	24-26
5.1	Water Quality Test Report	
CHAPTER - 6	Ambient Air Quality Assessment and Management	27-28
6.1	Air Quality Test Report	

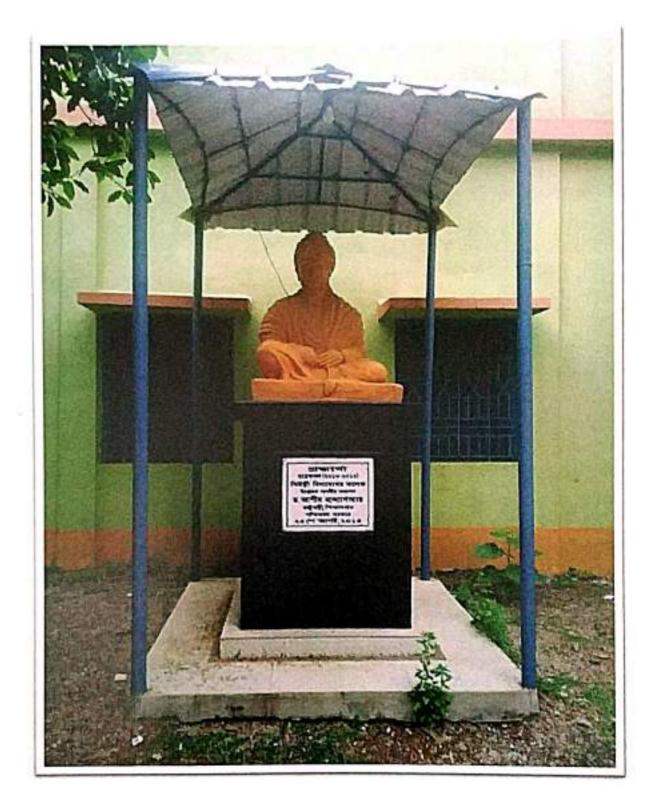
CHAPTER NO.	TITLE	PAGE NUMBER
CHAPTER - 7	Noise Monitoring	29-29
7.1	Ambient Noise Monitoring Status	
CHAPTER - 8	Rain Water Harvesting System	30-30
8.1	Rain Water Harvesting	
CHAPTER - 9	Electricity Consumption and Management	31-36
9.1	General Details	
9.2	Electrical Details	
9.3	Use of Alternate Energy	
CHAPTER - 10	Waste management	37-39
10.1	Solid Waste	
10.2	Liquid waste	
10.3	E-waste	
CHAPTER - 11	Biodiversity Status of the College Campus	40-54
11.1	Introduction	
11.2	Objective	
11.3	Method of Study	
11.4	Plant Diversity in the College	
11.5	Medicinal Plant in the College Campus	
11.6	Checklist of Reptiles	
11.7	Checklist of Birds	
11.8	Checklist of Mammals	
11.9	Checklist of Ferns and seasonal flowers	
CHAPTER - 12	Green Initiative	55-57
12.1	Plantation Programme	
12.2	Green Computing Practice	
CHAPTER - 13	Consolidation of audit findings	58-59
13.1	Preparation of Action Plan	
13.2	Follow up Action and Plans	
13.3	Environmental Education	
CHAPTER - 14	Conclusion and Recommendation	60-62
14.1	Suggestions	
14.2	Recommendations	1310-1410-00 mil
NOWLEDGEMENT		63-63

)

)

14





## EXECUTIVE SUMMARY

8

18

....

3

3

3

3

3

5

3

3

)

9

9

9

3

9

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. Suri Vidyasagar College 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 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 campus are in accordance with the green policy adopted by the institution, it works on several facets of Green Campus including water waste plantation, tree conservation, conservation. electricity 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.

Senar Bharat Environment & Ecology Pvt. Ltd. Parinal Sarrad Director

## CHAPTER - 1

#### INTRODUCTION

# 1.1 Green Audit

Ð

Ð

ĥ

È

ŝ

ŝ

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 data base 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 is 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 selfgoverning 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-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.

- 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 enable waste management through reduction of waste generation, solid and waste.
- 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 University 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 University.
- 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, 3 <sup>rd</sup> 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	<ul> <li>M.Sc. in Disaster Management</li> <li>Post Graduate Diploma in Environmental Law from National Law School, Bangalore</li> <li>Lead Auditor in ISO 14000 (Environmental Management)</li> </ul>
2	Shri Subrata De Sarkar	General Manager	<ul> <li>General Manager in Central Public Sector undertaking.</li> <li>12 years experience in Environmental Auditing</li> <li>Lead Auditor in ISO 50001:2011</li> </ul>
3	Shri Suman Chchattaraj	Environmental Specialist	<ul> <li>M.Tech in Environmental Science</li> <li>20 years experience in Environmental Impact Studies and Auditing</li> </ul>

## Energy Audit Team

9

9

Ð

þ

)

,

SN	Name	Designation/ Qualification	Experience
1	Shri Suvra Majumdar	<ul> <li>Post Graduate Diploma in Energy Management (MBA)</li> <li>B.Tech (Electrical Engineering)</li> </ul>	<ul> <li>15 years experience of Energy audit</li> </ul>
2	Shri Gautam Ghosh	<ul> <li>Diploma in Mechanical &amp; Electrical Engineering from Calcutta Technical School</li> </ul>	<ul> <li>27 Years experience of working in electrical engineering department in different industries.</li> <li>12 years experience in independent electrical auditing</li> </ul>

# 1.8 List of Instruments

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

Instrument	Make/Sr.No.
Digital LUX Meter	HTC/2222600
	Innova/I-259
Digital Multi Meter	Kusam Meco/162180630
The second se	Waco/1910149152
	Waco/307421
	Waco/2954563
	Instrument Digital LUX Meter Digital Micro OHM Meter Digital Multi Meter Digital Clampmeter Meger Load analyser

SI. 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

# 1.9 List of Laboratory Instruments for Environmental Monitoring

# 1.10 List of Field Equipment Department

SI. 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

- 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.

### SURI VIDYASAGAR COLLEGE

#### 2.1 About the College

Suri Vidyasagar College, named after the famous social reformer, litterateur, and fight for women's empowerment, Pandit Iswar Chandra Vidyasagar, has enter edits 79<sup>th</sup> year of eventful glory, bearing all the storms and buffets since its inception in 1942 as a wing of Vidyasagar College, Kolkata. In 1948, it was elevated to the status of a Degree College and given the name 'Suri Vidyasagar College' under the auspices of Calcutta University. Since 1960, the institute has been associated with the University of Burdwan, and it is presently a constituent College. Former President of the Republic of India, Honourable Shri Pranab Kumar Mukhopadhyay, was an eminent alumnus of this college.

Suri Vidyasagar College has devoted itself since its inception to the goal of imparting higher education, ensuring quality education, and providing research and extra-curricular activities in the best possible manner in order to spread the benefit of higher education in a relatively backward but glorious location. The NSS and NCC wings are doing excellent work in social reform and personality development.

Suri Vidyasagar College is 9.18 acres in size and Buildup area covers approximately 1.183Acre (51,544 Sq. Feet), which is located between the latitudes Latitude of 23°53'47.25"N to23°53'56.70"N and the Longitude of 87°31'57.64"E to 87°32'9.56"E.The College is proud of its eco-friendly Green Campus, which houses 22 departments teaching traditional and modern subjects, digital class rooms, state-of-the-art laboratories, a well-equipped Gymnasium, Language laboratory, distance education and open university study centres, the playground, residential accommodation for both teaching and administrative staff, a Post Office, and a Bank, among other things.

Under the University of Burdwan, the college provides 22 undergraduate courses and one postgraduate programme (Zoology). The college has 3870 students, 106 teaching faculty, and 27 non-teaching employees, and it is expected to grow rapidly. The college library is well- equipped with around 55,000 volumes, journals, reprographic machines, and so on, and it is rapidly progressing towards total digitization of its contents under the direction of two Librarians. At the end of 2016, our institute was reaccredited by NAAC with a rating of B++, the highest of any institute in the district of Birbhum.

#### 2.2 Introduction

Environmental auditing, often known as green auditing, refers to assessments that enable us systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. Environmental compliance and management system short comings, as well as related corrective activities. Green auditing is an effective method for determining how and where the most energy or water resources are being utilised, the type and volume of waste generated, and considerations on how to implement adjustments and save money may then be made. It can raise health awareness while also promoting environmental awareness, morals, and ethics. Overall, it is critical in providing employees and students with a better awareness of the green impact on campus.

Sec. 1. 2. 10

#### 2.3 History of College

\$

3

8

8

8

3

3

3

3

9

9

3

)

9

3

)

9

9

)

,

,

١

)

١

As far as the historical evidence goes, the first attempt to establish a college in Suri, the headquarters of Birbhum district, started in the year 1934. Under the tutelage of the then local landlord and educationist- Shri Amita Ranjan Mukhopadhyay, popular doctor Kaligati Banerjee, advocate Babu Harikinkar Samanta and other social activists, a working committee was formed, for this mission. The committee started collecting funds from local residents and it was decided that one of the members, Shri Tulsidas Chakraborty would buy them a large mansion by the name of 'Bose Saheber Kuthi', which would then form their base and also double up as the perfunctionary college building until a new one comes up. Funds were raised in the tune of twenty thousand rupees. But, with time the efforts waned and the funds dwindled. Fresh vigour was again observed in 1940. Under the leadership of Birbhum Zilla Board Chairman Shri Harikinkar Samanta, local dignitaries, including MLA Shri Debendranath Das, Shri Rampati Basu, Maulavi Nurul Absar, Md. Nake Moktar, Abdul Majid Choudhury along with the committee members submitted a deputation to the then Bengal 'Prime Minister' and Education Minister-in-Charge, Fajlul Haque, and petitioned for his assistance to bring up the college.

By then, the World War II had started and in India, Calcutta became the prime target of the Japanese. December of 1941 saw fierce bombing on Calcutta by the Japanese forces. This caused widespread panic and people started fleeing Calcutta for the neighbouring townships and villages. It was these circumstances that set the stage for the inception of Suri Vidyasagar College.

In his reminiscence, Jyoti Kishore Chowdhury, the then Principal of Vidyasagar College, Kolkata wrote: 'During those days, fear of bombing was so deep, the college had to be closed and a decision was taken to shift the college elsewhere'.

With the help of Prof. Tribhangamurari Mondal of Birbhum, plans were chalked out to setup the college at a school in Sainthia, a small township and business place near Suri. But, the efforts proved futile as this was disapproved by the then SDO of Suri, Shri Naren Chowdhury. Instead, he referred them to Dr. Kaligati Banerjee of Suri who grabbed the opportunity with both hands. A meeting was called in 1942, at the house of Dr. Kaligati Banerjee. Other than himself, the meeting was adorned by such esteemed luminarles as Shri. Nityanarayan Bandopadhyay, Shri. Umaprasanna Mukherjee (Olu Babu), the president of bar library-Shri Abinash Chandra Mitra, Shri P.C. Chandra, Shri

Bankim Mukhopadhyay, Maulavi Nurul Absar, Md. Nake Moktar and Principal J.K. Chowdhury. They then assembled at Shri. Amitaranjan's house for further assistance. In this regard, a proposal was placed before the Governing Body of Calcutta Vidyasagar College, which they approved along with an initial funding of Rs. 5000/-. Furnitures of the women section of I.Sc. Department were sent to Suri via train. Finally, under the guidance of Principal J.K. Chowdhury and with the newly appointed Vice-Principal (Suri campus) Tribhangamurari Mondal at the helm of affairs, Suri Vidyasagar College came into existence. On 9th March, 1942, under the chairmanship of former Calcutta Vidyasagar College student- Shri. Abinash Chandra Mitra, the college started its journey as a branch of "Vidyasagar College", Calcutta. Classes started in the house adjoining Shri. Amitaranjan's Kali Temple (Kali Bari), while the new building was being constructed south of the adjoining Banyan Tree of the selected place for the new college. Classes shifted to the new building in June 1942. Total number of students in the 1942-43 batch was 212 only. For them, students hostel were also set up in rented rooms at Kendua Village (known as Kendua Chhatrabas), in the out skirts of Suri. After 1948, it became an independent college with the name "Suri Vidyasagar College". The first Principal of the Suri Vidyasagar College was Prof. J. K. Chowdhury from 09.03.1942 to 28.02.50 and the first Vice-Principal was Prof. Tribhanga Murari Mondal

The College volunteered for institutional accreditation by NAAC, Bangalore, in November 2005. After analysis the executive committee of the NAAC awarded a grade of B+, on February, 2006. Now, in the second decade of the 21st century, the college stands tall, spreading the message of knowledge and wisdom to the society. Today, spread over an area of 25 Bigha, 5 Katha and 8 chatak, the college consists of 19 Academic Departments out of which 15 offer Honours & General courses, 4 General Courses and 1 P.G. Course in Zoology. In 1996, the total built up area of the college was 29,856 sq. ft. Another 14,755.31 sq. ft. was added between 2001 and 2004. Currently the total built area is around 70,000 sq. ft. which contains classrooms, laboratories, library, office, seminar halls, canteen, Gymnasium and students' hostels (separate for Boys and Girls).

The College in its second cycle accreditation by NAAC has improved its grade to B++ in 2016 which is a earmark to celebrate its Platinum Jubilee. The institute is now a RUSA 2.0 funded institute. One separate building with four Class rooms has been constructed and Girls Toilet has been renovated and extended with modern amenities. Additional Class rooms have been constructed with the grant from Higher Education Department, Govt. of West Bengal during last five years.

#### Location of the College

8

Location of the College is College Para, Suri, Dist. Birbhum, Pin Code - 731 101.

### Communication and Transportation

The College is well connected from Bolpur & Burdwan station and by road. The College is located within 1 km from Suri station and 1km away from Suri (NBSTC) Bus stand. Distance from Suri College to Andal Airport is around 61.7 Kms.

#### 2.4 Vision of the College:

 Our vision is to go ahead with confidence and courage to educate the students more and more with morality, nobility and magnanimity of soul removing all barriers to comprehensive education of good quality to serve society better. Our Vision: Wisdom, Sacrifice, Service

#### 2.5 Mission of the College:

- The declared goals and objectives of Suri Vidyasagar College are: Wisdom, Self-Sacrifice and Social Service (Jnana, Tyaga, Seva) embedded in the Emblem of the college. The missions of the college are:
- Imparting Higher Education,
- Development of Personality and 

   Raising Socio-Cultural Awareness.

### 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.

# LAND USE ANALYSIS, SURI VIDYASAGAR COLLEGE, WEST BENGAL

### 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. Built- up land area	1.2 Moderate	
	1.3 Sparse	

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

## 101-0.0

# LAND USE DATA OF COLLEGE OF SURI VIDYASAGAR COLLEGE

CATEGORIES OF LAND USE	AREA IN SQ METRES
OPEN SPACE AND PLANTATION	31553.30
Ground Coverage	5615.80
TOTAL AREA	37169.10

Ground coverage of 15.11% (i.e 5615.80 sq metres) consists of the buildings.

### FINDINGS:

Suri Vidyasagar 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 84.89% of the total area is occupied by open land and plantation that generates a better and sustainable campus environment.

### WATER QUALITY ASSESSMENT CONSUMPTION & MANAGEMENT

Water quality analysis was conducted by Qualissure Laboratory Services

# 5.1 Water Quality Analysis Test Report

I

ł

i

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

	Report No.	: QLS/MR/W/21-22/C/402
Name & Address Of the Customer :	Date	: 23.09.2021
	Sample No.	QLS/MR/W/21-22/402
M/s. Suri Vidyasagar College	Sample Description	: Drinking Water
College Para, Suri, Birbhum – 731 101.	Sample Location	Aquaguard Near Principal Office
	Sample Drawn On	: 26.08.2021
	Date of Performance	: 28.08.2021-13.09.2021

# Analysis Result

#### (A) Microbiological Analysis

SI. No.	Characteristic	Limit as per Orinking Water Standard : IS:10500, 2012Amd. 2	Test Method	Result
1	Total Coliform Bacteria/100ml	Not Detectable	15 15185-2016	Not Detected
2.	E.coli/100ml	Not Detectable	15 15185: 2016	Not Detected

### (B) Chemical Analysis

51.	Test Parameter	Test Method	As per Drinking Water Standard : IS:10500, 2012Amd. 1 & 2		Result
No.	1955 Parameter	And And And And	Desirable Limit	Permissible Limit	40.9597
1.	pH Value at 25°C	IS 3025 (Part 11)- 1984 RA: 2012	6.5-8.5	No Relaxation	7.47
2.	Turbidity in NTU	15 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	354
4.	Calcium(as Ca) in mg/l	IS 3025 (Part 11)- 1984 RA: 2012	75	200	59.6
5.	Chloride(as Cl) in mg/l	IS 3025 (Part 10)- 1984 RA: 2012	250	1000	94.6
6.	Iron (as Fe) in mg/l	IS 3025(Part S3)-1988 RA: 2014	1.0	No Relaxation	0.20
7.	Magnesium(as Mg) in mg/l	IS 3025 (Part 46)-1994 RA: 2014	30	100	33.4
8.	Nitrate (as NO <sub>3</sub> ) in mg/i	IS 3025 (Part 34)-1986 RA: 2014	45	No Relaxation	<0.5
9.	Free Residual Chlorine in mg/l	15 3025 (Part 26): 1986(RA 2014)	0.2	1.0	<0.1
	Sulphate (as SO4) in mg/l	15 3025 (Part 24)-1986, RA: 2014	200	400	38.9
10.	Alkalinity (as CaCO <sub>2</sub> ) in mg/l	IS 3025 (Part 23)- 1986, RA: 2014	200	600	190.0
11	Total Arsenic(as As) in mg/l	15 3025 (Part 37):1988, RA 2014	0.01	No Relaxation	<0.03
12.	Total Hardness (as CaCO <sub>3</sub> ) in mg/l	IS 3025 (Part 21)-1983, RA: 2014	200	600	286.9
- 1 C					

for Qualissure Laboratory Services Reviewed & Authorized By

### Bolacou

(Benimadhab Gorai) Authorized Signatory

### Drinking water facility at Suri Vidyasagar College

Ľ

ł.

The water that is utilised for drinking is clean and well-maintained. Six RO water filters have been built on our college campus to provide safe drinking water, two of which include chilling facilities. A solar energypowered water tank connection is available for emergency use at the Girls' Hostel and Quarter. Except for one or two instances, no water is lost during the survey as a result of leaks or overflow from overhead tanks. Moreover water is released from each water reservoir regularly and cleaned at regular interval to maintain the hygiene of the tank.



Fig. 1 : Drinking water facility of the College

(A) Water source for Gardening, (B) Tubewell, (C-D) Water filter with basin, (E) Small pump for drinking water, (F) Meters in Pump House, (G-H) Water Cooler with purifier, (I-J) Solar power-driven water pump with tank.

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

# TEST REPORT

Name & Address Of the Customer :	Report No.	: QLS/MR/W/21-22/C/403
	Date	: 23.09.2021
	Sample No.	; QLS/MR/W/21-22/403
M/s. Suri Vidyasagar College	Sample Description	: Waste Water
College Para, Suri, Birbhum – 731 101.	Sample Location	:Near Canteen Main Drain
	Sample Drawn On	: 26.08.2021
	Date of Performance	: 28.08.2021-13.09.2021

3

5

5

# Analysis Result

SI.	Parameter	TEST METHOD	Result	Limit as per CPCB for discharge of effluents	
No.	Parameter			Inland Surface Water	Public Sewers
1	pH at 25°C	APHA 23 <sup>rd</sup> Edition-2017, 4500 H+	7.16	5.5 to 9.0	5.5 to 9.0
2	Total Suspended Solid in mg/l	27	13	100	600
3	Chemical Oxygen Demand (as COD) mg/l	APHA 23 <sup>M</sup> Edition-2017, 52208	27	250	
4	Biochemical Oxygen Demand (as BOD) mg/l	IS 3025 (Part 44)-1993, RA:2014	12	30	350
5	Oil & Grease in mg/l	APHA 23 <sup>'d</sup> Edition-2017, 5520A	<1.9	10	20

for Qualissure Laboratory Services sviewed & Authorized By

Survice + Survic

(Benimadhab Gorai) Authorized Signatory

AMBIENT AIR QUALITY ASSESSMENT AND MANAGEMENT

# 6.1 Air Quality Test Report

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

## TEST REPORT

Name & Address Of the Customer :

M/s. Suri Vidyasagar College College Para, Suri, Birbhum – 781 101. Report No. Date Sample No. Sample Description Sample Mark : QLS/MR/A/21-22/C/571 :23.09.2021 : QLS/MR/A/21-22/571 : Ambient Air : Near Principal Room

## **Analysis Result**

Locatio	n : Near Principal Room	Date of sampling : 26.08.2021-27.08.2021		
Sampli	ng Done by: B.Mondal	Sampling done as per : CPCB Guidelines (Volume-1)		
Enviro	nmental Condition: Cloudy	Average Temperature : 29°C		
Barom	etric Pressure : 752 mm of Hg		Average Humidity	: 62%
51. No.	Pollutants	Result	Umit as per CPC8	Method of Test Reference
1	Particulate matter (<10µm) in µg/m <sup>4</sup>	64	100	IS: 5182 (Part-23), RA-2017
2	Particulate matter (<2.5µm) in µg/m <sup>3</sup>	29	60	USEPA CFR-40, Part-50, Appendix-
3	Sulphur dloxide (SO2) In µg/m <sup>8</sup>	6.1	80	IS: 5182 (Part-2)-2001, RA-2017
4	Nitrogen diaxide (NO <sub>2</sub> ) in µg/m <sup>3</sup>	23.2	80	IS: 5182 (Part- 6)-2006, IKA-2017
5	Carbon Monexide (CO) in µg/m <sup>4</sup>	617	2000	IS: 5182 (Part-10):1999,RA-2014



(Benimadhab Goral) Authorized Signatory

# AMBIENT AIR TEST REPORT

F

F

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

### TEST REPORT

Name & Address Of the Customer :	Report No.	: GLS/MR/A/21-22/C/572	
M/s. Suri Vidyasagar College	Date	23.09.2021	
College Para, Suri, Birbhum - 731 101.	Sample No.	QLS/MR/A/21-22/572	
	Sample Description	: Ambient Air	
	Sample Mark	: Near Teacher's Room	

## Analysis Result

Loca	tion : Near Teacher's Room	Date of sampling : 26.08.2021-27.08.2021		
Same	pling Done by: B.Mondal	Sampling done as per : CPCB Guidelines (Volume-1)		
Envir	onmental Condition. Cloudy	Average Temperature : 29°C Average Humidity : 62%		
Baro	metric Pressure : 752 mm of Hg			
SI. No.	Pollutants	Result	Limit as per CPCB	Method of Test Reference
1	Particulate matter (<10µm) in µg/m*	81	100	IS: 5182 (Part-23), RA-2017
2	Particulate matter (<2.5µm) in µg/m <sup>3</sup>	38	60	USEPA CFR-40, Part-50, Appendix-
3	Sulphur diaxide (SO;) in µg/m <sup>1</sup>	6.7	80	15: 5182 (Part-2)-2001, RA-2017
4	Nitrogen diaxide (NO <sub>2</sub> ) in µg/m <sup>1</sup>	24.6	80	IS: 5182 (Part-6)-2006, RA-2017
5	Carbon Monoxide (CO) in µg/m <sup>1</sup>	655	2000	IS: 5182 (Part-10):1999,RA-2014

for Qualissure Laboratory Services Reviewed & Authorized By

(Benimadhab Goral) Authorized Signatory

NOISE MONITORING

## 7.1 Ambient Noise Monitoring Status:

F

S

F

3

5

3

3

3

5

3

3

3

3

3

3

3

3

9999

an di di

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

### TEST REPORT

Name & Address Of the Customer :	Report No.	: QLS/MR/A/21-22/C/684	
	Date	: 23.09.2021	
M/s. Suri Vidyasagar College	Sample No.	: QL5/MR/A/21-22/684	
College Para, Suri, Birbhum – 731 101.	Sample Description	Ambient Noise	

Sampling C	Guideline : As per IS:	9876: 1981 (RA-2001)		
Sample No.	Date of Monitoring	Location	Leg dB (A) Day Time	Leq dB (A) Night Time
811	26 - 27.08.2021	Near Principal Room	55.5	44.6

Code/ Category	Leg dB (A)Day Time	Leg dB (A)Night Time	
A/Industrial	75	70	HOTE
B/Commercial	65	55	<u>NOTE:</u> Day Time : 06.00 Hr 22.00 Hr.
C/Residential	55	45	Night Time : 22.00 Hr 06.00 Hr.
D/Ecological Sensitive	50	40	

for Qualissure Laboratory Services Reviewed & Authorized By

(Benimadhab Goral) Authorized Signatory

# RAIN WATER HARVESTING SYSTEM

The primary goal of rain water harvesting at Suri Vidyasagar College Campus is to raise ground water levels by collecting and storing rain water from roof top run-off. The College lies in a semi-arid and sub-humid zone. The campus'ss oil is lateritic in nature. The soil is exceptionally porous and has a high capacity for in filtration. In our campus rain water harvesting system has been installed at Aurobinda Bhavana. The roof runoff water is collected through network of pipe lines and store it within two large tanks situated at ground level in front of Aurobinda Bhavana. This stored rainwater is used for cleaning and gardening purpose.

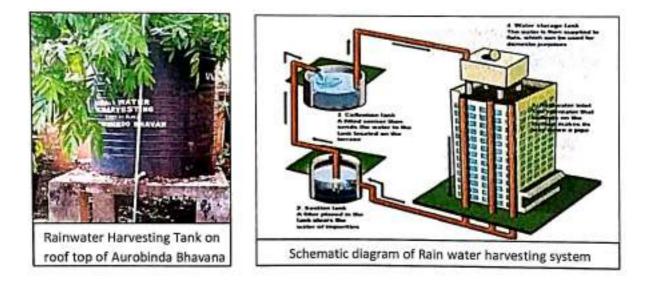


Fig. 2 : Rain Water Harvesting System

# ELECTRICITY CONSUMPTION (IN UNIT) AND MANAGEMENT

# 9.1 General Details:

6

F

5

5

i.

5

5

SLNo.	PARTICULARS	DETA	and the second se	
1	Name & Address of College	Suri Vidyasagar College College Para, Suri, Birbhum West Bengal-73110		
	Web Site	https://surividyasagarcollege.org.in		
2	Name of Contact Officer	Dr. Tapan Kumar Parichha		
	Designation	Principal		
	Name of Alternative Officer	Dr. Soumya Ranjan Bhattacharyya		
	Designation	IQAC Coordinator		
3	Telephone No.	NA		
	Mobile No.	9830829832		
	Fax No. e-mail ID	svctkp@gmail.com		
	No. of shift (Morning & Day)	7am to 5pm		
	No. of Employees (Approx)	105		
4	Electricity Consumption	Imported (Purchased) 2572		
5	Specific Energy Consumption	Fuel	Electricity	
	Sharris San Sa	2319/-	Rs. 20,791/- (Per (month)	
6	LPD	3,340/-		
7	EPI	0.13		

# 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	,18.13
В	Maximum demand	18.12
C	Total Energy units consumed / year	30874
D	Avg. Power Factor(P.F.)	0.97
E	Avg. Energy bills(Rs/month)	Rs.20,791/-

# c) Detailed list of Electric Motors operating in the college

S.NO.	NAME OF THE PLANT	RATING OF MOTOR (KW)	NO. OF MOTORS
I	Suri Vidyasagar College, Suri, Birbhum	3.34	4 nos.

## d) Connected Load

B

T

E

i,

	EQUIPMENT	TOTAL NUMBE RS	LOAD IN KW (TOTAL)
A	Motors : Greater than 10kW	NIL	NIL
50	: Less than 10 kW	4Nos.	3.34 KW
в	AC & Ventilation with TR capacity		
a)	Others (Package ACs/ Split ACs / Windows ACs) with TR	Room AC of Split/Window type – 50.99	
с	Total Process Load (in kW)	54.33 KW	
D	Total Lighting Load (in kW) & Luminaries details		v
-	Total Load (in kW)	127.77 KW	

### A. Lux Measurements :

ù

3

b

ā

SLuo.	Room	LUX level	Remarks
1.	Arabinda Bhayan		
	Ground Floor	302,301,301,298,298	
	1 <sup>st</sup> floor	303,305,302,305,304	
	2 <sup>nd</sup> floor	300,303,306,312,305	
2	Rabindra Bhayan		
	Ground Floor	306,305,303,297,301	
	1 <sup>st</sup> floor	305,302,299,304,308	
3	Auditorium (New hall)		
	Ground Floor	299,304,306,302,307	
4	Gandhi Bhayan		
	Ground Floor	305,306,305,298,299	
	1 <sup>st</sup> floor	308,306,302,301,304	
5	Vivekananda Bhavan		
	Ground Floor	304,306,306,310,303	
	1 <sup>st</sup> floor	299,300,304,307,305	
6	Humanities Building		
	Ground Floor	305,304,312,309,304	
	1 <sup>st</sup> floor	303,300,307,309,303	
7	Administrative Building		
	Ground Floor	303,311,314,302,306	
	1 <sup>st</sup> floor	311,308,314,302,309	
8	Rabindra Chatravas		
0	Ground Floor	300,302,303,299,307	
	1 <sup>st</sup> floor	302,305,304,300,307	
0	Mrinalini Chatriniwas		
	Ground Floor	301,303,308,304,307	
	1 <sup>st</sup> floor	302,304,309,301,305	
10	Micro Biology		
10	Ground Floor	309,308,304,303,304	
	1 <sup>st</sup> floor	301,303,302,304,305	
11	NSOU Building		
	Ground Floor	312,308,309,303,304	
	1 <sup>st</sup> floor	308,311,304,306,308	
12	RUSA		
	Ground Floor	303,302,304,309,307	
	1 <sup>st</sup> floor	303,306,304,309,305	

Koma.	Average Lighting Level (LLX)	NBC Recommended
Muthinda The-an	303	500-500
Lamoura Thanas	303	300
Summerson Sum Ault	303	300
Guesdia Aria-an	100	300
S	504	300
furmarrius Swisting	kan	300
Administrative Building	31215	100
Fathroits Chatteras	1002	500
Writesilas Charrititeas	Sec.es	300
Witness Strategy	bova	100
WHOIL BUILDING	501	300
46.3.4	30.1	300

#### Illumination Level Comparison

## Marmoriter: Lighte month also aim at an interval of our month and old light to be replaced by new to get desired LUX when

### 9.3 Use of Alternate Energy

L

-

5

3

3

3

3

3

3

3

9

2

3

9

9

9

ÿ

The institute has taken an important step for reduction in pollution level by installation of solar panel and photo voltaic cell for generating electricity.

For reducing carbon emission, and dependence on fossil fuel, the institution has resorted to using green energy by harnessing solar power.

Generated power is transferred to the grid.

This helps in reducing carbon emission.



Fig. 3 : Solar System

#### 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

Suri Vidyasagar College has set up separate bins to ensure proper segregation and collection of the biodegradable, non-biodegradable and hazarders 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, which and brown papers, batteries, print cartridges, cardboard, furniture, damage pen, carbon papers etc are either sold to vendors for recycling or despatch via municipality disposal van in regular basis. The biodegradable waste such as humas, rest portion of vegetables etc. which are used in college canteen, Staff quarters and Boys' and Girls' hostels are used for preparing bio fertilizers.

Vermi compost units are observed near New Hall for fertilizers also. College has developed few good practices, such as single sided used papers are reused for writing and printing in all the departments to minimize the usage of papers. Very less plastic waste (0.1Kg/day) is generated by some departments, office, garden etc and campus is declared as Plastic Free zone. Metal waste and wooden waste is stored and sent to authorize scrap agents for further processing. Glass bottles are reused in the laboratories.



Fig. 4 : Solid Waste

(A) Dustbin for solid and liquid waste, (B) Large dustbin for solid non-biodegradable waste product;
 (C) Reservoir for Solid bio-degradable waste product; (D) Vermi compost units (E) Disposed of waste product storage bags carrying van from Suri municipality by NCC

# 10.2 Liquid Waste

The source of wastewater is Domestic Waste Water i.e., Sewage water. The Sewage water mainly comes from laboratory of different departments, toilets of college, hostel, kitchen and canteen. Those waters are used for gardening purpose.

### 10.3 E-Waste

ù.

ù

3

3

5

5

3

j

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.

E-Waste is accumulated in a separate room, stock of such waste as on date is guite substantial.

# BIODIVERSITY STATUS OF THE COLLEGE CAMPUS

### 11.1 Introduction

3

Suri Vidyasagar College campus is very rich in the term of 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 biodiversity of an area so that the local people can be aware of the richness of biodiversity 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:

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

### Survey Area

The green area of Suri Vidyasagar College covers approximately 3.96 acres out of 9.18 acres, which is about 43.15 percent of the total area, and is strategically distributed across different sections of the campus. The green spaces include gardens, courtyards, an open field, and a play ground, providing ample opportunities for relaxation, outdoor activities, and study in a natural setting.

# Location Map

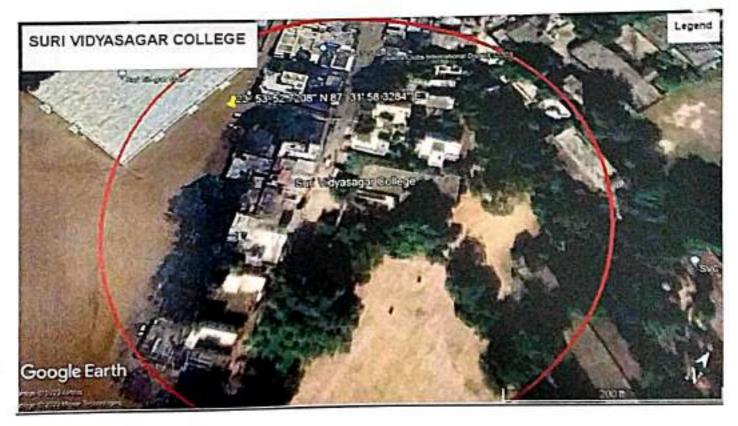


Fig. 5 : Location map

### 11.3 Method of Study

5

5

....

U

5

3

J

N

9

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.

Ĵ

- 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.

43

### 11.4 Plant diversity in the College Campus

U

0

0

Ū

Ĵ

000000

a,

Suri Vidyasagar College premises having about 39.54 acres of land have unique plant diversities. These include flowering plants, leafy trees, medicinal herbs and innumerable wild bushes.

These plants are listed and depicted as following:

<b>東季長与</b> Deformer regio (Bojer ex Hook.) Raf Family Fabaceae, Clade, Rosids	বান্দরলাঠি Cassia fietula L. Family: Fabaceae, Clude: Rosids	মিলজিরি Senna siamea (Lam ) H.S.Irwin&Barneby Family: Fabaceae; Clade: Rosids
(মহগলি Sweetenia mahagoni(L) Jocq Family: Meliaceae; Clade: Rosids	কলকচূড়া Petropherampterocorpum(DC.) Backer ex K.Hayne Family: Fabacene; Clade: Rosids	वकुम Mimusopselengi L Family: Sapotaceae; Clade: Asterids
Pre Dalbergia sissooRoxb ex DC Family, Fabacene, Clade Rosids	শিরিষ Albizia Irbbeck(L.) Benth. Family: Fabacene, Clade: Rosids	(দেবদার্রা Monocolongifolium (Sonn.) B. Xue & R.M.K. Saunders Family Annonaceae, Clade Magnoliids
वाडि	ছান্তিম	निम
Casuarino equiretyfolia L	Alstoniazeholaris (L.) R.Br.	Azadirachus Indica A. Juss.
Family: Casuarinoceae; Clade: Rosids	Pamily: Apocynaceae; Clade: Astends	Family: Meliaceae, Clude Rosids
ইউক্যালিসটাস	(위원ল	বট
Eacolyptus Invelicarnis Sm	Tectono grandiel, f	Ficus benghalensis L.
Family: Myrtaceae, Clade: Rosids	Family: Lamiacene; Clade: Asterida	Family: Moraceae: Clade: Rosids
পাকুতু	ठ्याम	তান
Ficea wrenaAiton	Mangifera Indica L.	Borassas flabellifer L
Family: Moraceae, Clade: Rosids	Family: Anacardiaceae, Clade: Rosids	Family: Arecaceae, Clade: Commelinids
শারোসো	5-5551	লাগপিসম
Glascidiasepiam(Jacq.) Kunth	Tecomo nom (L.) Juss. ex Kumh	CowrouplingulanensisAubl
Family: Fabacese, Clade: Rosids	Family: Bignoniaceae; Clade: Asterids	Family: Lecythidacene; Clade: Asterids
(বল	কাঠ-বাদাম	Ach
Aegle marmelos (L.) Correa	Terminalia catappo L.	MorindocoreiaBuch-Ham.
Family: Rutacese; Clade: Rosids	Family: Combretaceae; Clade: Rosids	Family: Rubiaceae; Clade: Asterids
Kurchi HolorrhenopubercensWall. ex G.Don Family: Apocynaceae; Clade: Asterids		

# List of the Major Plants of the Garden

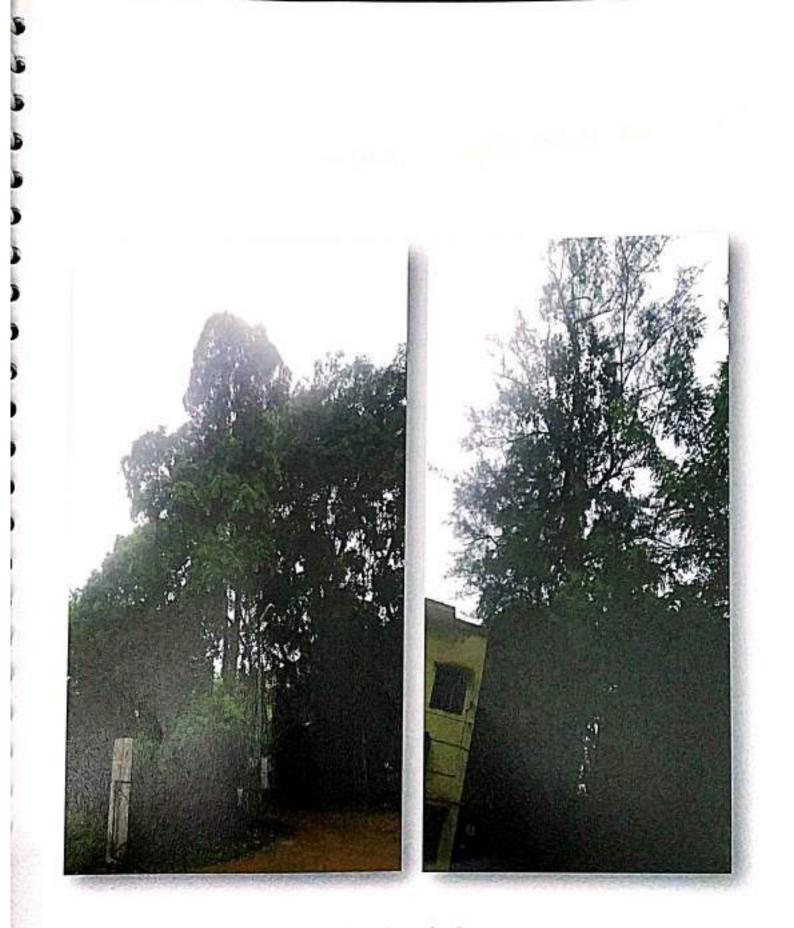


Fig. 6 : Major plants in the campus area

# 11.5 Medicinal Plants in the Campus:

ĥ

2

S

5

のうちちちして

D

A number of plants with medicinal properties are growing in the campus, specially in the medicinal plant garden.

SI. No.	Common Name	Scientific name	Uses	
1	Basak	Justicia adhatoda	Couth, colds, asthma, bronchodilator	
2	Apang	Achyranthes aspera Linn.	Anti inflammatory and uterine stimulant activity, recumatism. Hydrophobie.	
3	Kalmech	Andrographis paniculata (Burm.f.)	Fever, dysentery, dyspepsia, improves liver function, Leaves – in case of irregular stool, losss of appetite; roots – given to children to cure general debility.	
4	Harjora	Cissus quadrangularis Linn. Syn. Vitis quadrangularis	Leaves – in bowel complaints; stem to cure scurvy, irregular menstruation, asthma, sap applied externally on forehead to cure one- sided beadache	
5	Amlaki	Emblica officeinalis Gaertn	Fruits - treat vomiting, leprosy, piles, anaemia; leaves - in ophthalmia.	
6	Ramtulsi	Ocimum gratissimum Linn.	Leaves – Decoction of the leaf applied to treat septic wounds, Seeds – soaked in water and taken very cooling and refreshing drink.	
7	Jaba	Hibiscus rosasinensis Linn.	Flowers – in black colour of hair, female disease; leaves – soothing, used in growth of hair. Boots – in cold.	
8	Telakucha	Coccinia grandis (Linn.) Voigt	Roots – in case of vomiting, burning sensation of hands and feet; Leaves – in cough and sk disease.	
9	Arshagandha	Wythania somnilera	Root, Leaf, Fruits and Seed	
10	Akanda	Calotropis agigantea	Bark, Root, Leaf, Latex, Flower	
11	Ayapan	Eupatorium triplinerve	Whole Plants	
12	Tulsi	Ocimum sanctum	Leaf	
13	Kari pata	Murraya koenigii	Root, Leaf, Fruit	
14	Bisallakaroni	Barleria lupulina	Leaf	
15	Kulephara	Hygrophila schulli	Whole plant	
16	Gurmar	Gymnema sylvestre	Root, Leaf, Fruit	
17	Grikumari	Aloe vera	Leaf	
18	Thankuni	Cantella asiatica	Leaf	
19	Nayantara	Catharanthus roseus	Whole Plants	
20	Neem	Azadirachta indica	Bark, Leaf, Yound Stern, Unripedfuit, Seed Oil	
21	Basak	Adhatoda vasika	Leafd, Flower, Bark, Root	
22	Bisllakarani	Gendarussa Vulgaris	Leaf	
23	Bel	Aegle marmelos	Root, Young Leaf, Flower, Ripe and Unriped Fruit	
24	Sarpagan Jha	Raunolfia serpentina	Leaf	
25	Sughni	Marsilea minuta	Whole Plant	
26	Karabi	Nerium odorum	Root, Leaf, Bardk, Stem	
27	Black Tulsi	Ocimum tenuiflorum	Whole Plant, Leaf, Seed	
28	Muthagrass	Cyperus rotundus	Root	

46



1. Heliotropium indicum



3. Gymnema sylvestre



þ

ī,

3

2

2

7

5. Asystasia gangetica



MEDICINAL GARDEN



6. Hygrophila spinosa



2. Impatiens balsamina



4. Pergularia daemia



7. Anisomeles indica





#### 8. Hyptis suaveolens

#### 9. Leonotis nepetifolia



ĺ,

0

ð

0

)

)

)

3

3

2

3

2

10. Leucas cephalotes



11. Martynia annua



12. Vitex negundo



13. Clerodendrum viscosum



14. Evolvulus alsinoides



15. Ipomoea pes-tigridis



16. Operculina turpethum



17. Euphorbia tirucalli



18. Ricinus communis

Fig. 7 : Medicinal plants

SI. 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

b

Ĵ

)

)

)

)

)

>

)

>

5

2

11.6 Checklist of Reptiles:

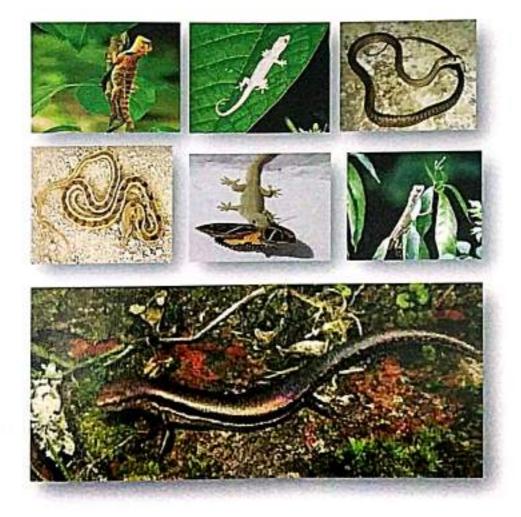


Fig. 8 : Reptiles

### 11.7 Checklist of Birds:

A total of 63 types of bird species were found in the campus, which is quite a good number, in spite of the industrialized surrounding around it.

SI. No.	Total bird species encountered Common Name	Scientific Name
1	Indian company	Phalacrocorax fuscicallis
2	Indian cormorant	Microcarbo niger
3	Little cormorant	Egretta garzetta
4	Little Egret	Bubulcus ibis
	Cattle Egret	Milvus migrans
5	Black Kite	Elanus axillaris
6	Black shouldered kite	
7	Common kestrel	Falco tinnunculus
8	Shikra	Accipiter badius
9	White breasted water hen	Amaurornis phoenicurus
10	Pond Heron	Ardeola grayii
11	Common sandpiper	Actitis hypoleucos
12	Yellow Footed Green pigeon	Treron phoenicoptera
13	Rock pigeon	Columba livia
14	Spotted dove	Spilopelia chinesis
15	Ring necked dove	Streptopelia capicola
16	Alexandrian parakeet	Psittacula eupatria
17	Common Cuckoo	Cuculus canorus
18	Spotted Owlet	Athene brama
19	White throated Kingfisher	Halcyon smyrnensis
20	Small blue Kingfisher	Alcedo atthis
21	Stork billed Kingfisher	Pelargopsis capensis
22	Pied Kingfisher	Ceryle rudis
23	Common Hoopoe	Upupa epops
24	Chestnut headed Bee-eater	Merops leschenaulti
25	Green Bee-eater	Merops orientalis
26	Black-rumped Flameback	Dinopium benghalense
27	Brown-capped Pygmy Woodpecker	Yungipicus nanus
28	Coppersmith Barbet	Megalaima haemacephala
29	Blue throated Barbet	Megalaima asiatica

Total bird species encountered in the college campus.

SI. No.	Common Name	Scientific Namo
30	Lineated Barbet	Megalaima lineata
31	Brown-capped Woodpecker	Dendrocopos nanus
32	Brown Shrike	Lanius cristatus
33	Long tailed Shrike	Lanius schach
34	House Sparrow	Passer domesticus
35	Black hooded Oriole	Oriolus xanthornus
36	Golden Oriole	Orious oriolus
37	Black Drongo	Dicrurus macrocercus
38	Bronze winged Drongo	Dicrurus aeneus
39	Common Myna	Acridotheres tristis
40	Asian pied Starling	Gracupica conta
41	Chestnut tailed Starling	Sturnia malabarica
42	Jungle Myna	Acridotheres fuscus
43	Rufous Treepie	Dendrocitta vagabunda
44	Common Crow	Corvus brachyrhynchos
45	Red vented Bulbul	Pycnonotus cafer
46	Red whiskered Bulbul	Pycnonotus jocosus
47	Common Prinia	Prinia inornata
48	Ashy Prinia	Prinia socialis
49	Common Babbler	Turdoides caudata
50	Brown breasted Flycatcher	Muscicapa muttuí
51	Taiga Flycatcher	Ficedula albicilla
52	Tailorbird	Orthotomus sutorius
53	Bluethroat	Luscinia svecica
54	Pied Bushchat	Saxicola caprata
55	Oriental Magpie robin	Copsychus saularis
56	Pale billed Flowerpecker	Dicaeum erythrorhynchos
57	White Wagtail	Motacilla alba
58	Pied Wagtail	Motacilla alba
59	Yellow Wagtail	Motacilla flava
60	Citrine Wagtail	, Motacilla citreola
61	Purple rumped Sunbird	. Leptocoma zeylonica
62	Silver billed Munia	lonchura punctulata
63	White throated Fantail	Rhipidura albicollis.

A DESCRIPTION OF THE REAL PROPERTY OF THE REAL PROP



Fig. 9 : Local Birds

11	
1	
1	
0	
× .	
88	
2	
÷.	
6	
_	
>	
>	
)	
2	
)	
2	
3	
2	
3 3 3	
3	
3	
3	
2	
2	
2	
3 3 3	
3 3 3	
3 3 3	
コンフフ	
コンフフ	
3 3 3	
2 2 2 2 2 2	
2 2 2 2 2 2	
コンフラフラ	
コンフラフラ	
コンフラフラ	
コンションション	
コンションション	
コンションション	
ココココココココ	
ココココココココ	
ココココココココ	
ココココココココココ	
ココココココココ	

A

# 11.8 Checklist of Mammals:

SI. 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	Charnchike
4	House mouse	Mus musculus	Indur
5	Rat	Rattus norvegicus	Dhere indur











Fig. 10 : Mammals

SI. 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	Drynaria quercifolia
5.	Dog flower, Snadragon	Dog flower, Snapdragon	Antirrhinum majus
6.	Garden stock, Common stock	Garden stock, Common stock	Matthiola incana
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.

# 11.09 Checklist of Ferns and Seasonal Flowers

ł

1

T

3

)

5

Ì

)

)

)

)

)



Fig. 11 : Flowers of the college premises

#### CHAPTER - 12

#### GREEN INITIATIVES

Suri Vidyasagar 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

b

Plantation programme of Suri Vidyasagar College promotes environment management and conservation in the college campus with the following objectives:

- To motivate the students to keep their surroundings green and clean by undertaking plantation of trees.
- Promote ethos of conservation of water by minimizing the use of water.
- 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.

55



Tree Plantation by NCC department of Suri Vidyasagar College

Fig. 12 : 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<sub>2</sub>. The tons of biomass are saved by this green computing practice

57

#### 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. Suri Vidyasagar 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. Suri Vidyasagar Colleges hold 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.

#### 13.1 Preparation of Action Plan

b

J

3

0

3

3

3

,

5

2

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 on the basis of the audit findings.

#### 13.3 Environmental Education

00000

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.

#### 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

- 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.
- 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.

60

#### 14.2 Recommendations:

- Declare the campus plastic free and implement it thoroughly.
- b) Avoid plastic/thermocol plates and cups in the college level or department level functions.
- c) Noise level monitoring shall be done as per the guideline of "Noise Pollution (Regulation and Control) Rules '2000'.
- d) The Biodiversity is to be maintained whole considering the plantation in future.
- Awarness among students and staff about green environment shall be done use tools like display boards.
- f) The surroundings of the College should be keep clean.
- g) Exhaust Gas shall be monitored, analysed and check regularly
- Parking zone of college shall be neat & clean
- The institution should develop internal procedures to ensure its compliance with environmental legislation and responsibility should be fixed to carry out it in practice
- j) A frequent visit should be conducted to ensure that the generated waste is measured, monitored, and recorded regularly and information should be made available to the administration.

Sonar Pharat Environment & Ecology Pvt. Ltd. Parimas Sarkon Director

#### Fire Extinguisher

> Calibration should be done before the expiry date of calibration.

#### Medicinal Garden

Medicinal Garden should be keep clean. Systematic plantation program should be drawn and implemented.

#### Energy Consumption

- Replace incandescent and CFL lamps with LED Light
- Replace LCD computer monitors with LED monitors.

#### Drinking Water

Drinking water, Noise, Ambient Air quality monitoring is to be conducted through approved vendor of the West Bengal Pollutin Control Board (WBPCB).

#### Ponds

The ponds should be cleaned every year.

#### Solid Waste

The solid waste should be reused or recycled at maximum possible places

Sonar Pharat Environment & Ecology Pvt. Ltd. Parimal Sarkar

Director

# 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.

Our special word thanks are extended to:

- 1. Dr. Tapan Kumar Parichha Principal
- Dr. Soumya Ranjan Bhattacharyya Associate Professor, Dept. of Physics, & Coordinator of IOAC
- 3. Dr. Anirban Paul Assistant Professor of Botany & Convenor, Green Audit Team
- 4. Dr. Sujoy Das Assistant Professor of Mathematics
- 5. Dr. Hemanta Saha Assistant Professor of Botany & A.N.O., NCC
- Dr. Tanmoy Mandal Assistant Professor of Plant Protection & P.O., NSS
- 7. Sri Pankaj Roy Assistant Professor of Chemistry
- 8. Sri Shamim Alam Assistant Professor of Botany
- 9. Sri Ranajit Ghosh State Aided College Teacher of Geography
- 10. Sri Subhas Chandra Mondal Accountant

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

Parinal Sam

SONAR BHARAT ENVIRONMENT & ECOLOGY (P) LIMITED Registered Office: Flat No. 1A N368, Baishnabghata Patuli, Kolkata -700 094 Hoad Office: 35 Chtaranian Avenus, 3<sup>rd</sup> Roor Kokata - 700012 Phone : (91-33) 2211 – 3034/0397, 033 4003 1179, E-mail : <u>sonarbharat2010/@gmail.com</u> <u>sonarbharat2017(@gmail.com</u>

Date: 29.09.2021

#### GREEN AUDIT CERTIFICATE

Name of Work Project

 Green Audit of Suri Vidyasagar College College Para, Suri, Dist. Birbhum, West Bengal – 731 101.

Duration of Audit

: 19.08.2021 to 20.08.2021

- Period of Audit : 2020-2021
- Sonar Bharat Environment & Ecology Pvt. Ltd. has conducted Green Audlt in the campus of Suri Vidyasagar College, College Para, Suri, Dist. Birbhum, West Bengal – 731 101.
- With the cooperation of faculty members and other staff audit has been successfully completed.

Barral

Subrata Desarkar (Auditor)



Parimal Sarkan

Parimal Sarkar (Director)

SONAR BHARAT ENVIRONMENT & ECOLOGY (P) LIMITED

Registered Office: Flat No. 1A N368, Baishnabghata Patuli, Kolkata -700 094 HeadOffice: 35, Chitaranjan Avenue, 3<sup>rd</sup> Floor Kolkata - 700012 Phone : (91-33) 2211 --3034/0397, 033 4003 1179, E-mail : <u>sonarbharat2010@gmail.com</u> <u>sonarbharat2017@gmail.com</u>

Date: 23.09.2021

#### ENERGY AUDIT CERTIFICATE

- Name of Work Project
- Energy Audit of Suri Vidyasagar College
   College Para, Suri, Dist. Birbhum, West Bengal 731 101.
- Duration of Audit : 11.08.2021 to 12.08.2021
- Period of Audit : 2020-2021
- Sonar Bharat Environment & Ecology Pvt. Ltd. has conducted Energy Audit in the campus of Suri Vidyasagar College, College Para, Suri, Dist. Birbhum, West Bengal – 731 101.
- With the cooperation of faculty members and other staff audit has been successfully completed.

Sevsa Majumdor

Sonar Bharal Environment & Ecology Put. Ltd. Parimal Sarkar

> Director Parimal Sarkar (Director)

Suvra Majumda BEE-EA-5723, AEA-221 Chartered Engineer (India) – Electrical Engineering Div. SONAR BHARAT ENVIRONMENT & ECOLOGY (P) LIMITED Registered Office: Flat No. 1A N368, Baishnabghata Patuli, Kolkata -700 094 HeadOffice: 35 Chitaranian Avenue, 3" Roor Kalata - 700012 Phone : (91-33) 2211 – 3034/0397, 033 4003 1179, E-mail : <u>sonarbharat2010@gmail.com</u> <u>sonarbharat2017@gmail.com</u>

Date: 23.09.2021

#### ENVIRONMENTAL MONITORING CERTIFICATE

Name of Work Project

Environmental Monitoring of Suri Vidyasagar College
 College Para, Suri, Dist. Birbhum, West Bengal – 731 101.

- Duration of Audit
- : 26.08.2021 to 27.08.2021

: 2020-2021

- Period of Audit
- Sonar Bharat Environment & Ecology Pvt. Ltd. has conducted Environmental Monitoring in the campus of Suri Vidyasagar College, College Para, Suri, Dist. Birbhum, West Bengal – 731 101.
- With the cooperation of faculty members and other staff audit has been successfully completed.

Barrel

Subrata Desarkar (Auditor)



Parumal Sarkan Parimal Sarkar (Director)

# THE END

-----



Green Audit Report of SURI VIDYASAGAR COLLEGE



2021-2022

# INTERNAL QUALITY ASSURANCE CELL (IQAC)

SURI VIDYASAGAR COLLEGE

COLLEGE PARA, SURI, DIST. BIRBHUM, WEST BENGAL - 731 101.

CONTI	ENT
-------	-----

	TITLE	PAGE NUMBER
CHAPTER NO.	Executive Summary	05-05
automation a	Introduction	06-14
CHAPTER - 1	Green Audit	
11	Why Green Audit	
1.2	Goals of Green Audit	
1.3	Objective of Green Audit	
1.4	About criteria 7 of NAAC	
1.5	Benefit of Green Audit on Educational	
1.6	Institute	
1.7	Introduction of Auditing Firm	
1.8	List of Instrument Energy Audit	
1.9	List of Laboratory Equipments for	
	Environmental Monitoring	
1.10	List of Field Equipments in Environment	
1.10	Department	
1.11	General Steps involved in Green Audit	15.10
CHAPTER - 2	Suri Vidyasagar College	15-19
2.1	About the College	
2.2	Introduction	
2.3	History of the College	
2.4	Vision of the College	
2.5	Mission of the College	
CHAPTER - 3	Green Audit Methodology	20-21
the second s	Utility of Green Audit	
3.1	Objectives of the study	
3.2	Methodology	1005-72
CHAPTER - 4	Land Use Analysis	22-23
and the second sector of the second sec	General overview of the concept of land	
4.1	use	
4.2	Methodology adopted for land use	
14.2	mapping	
CHAPTER - 5	Water Quality Assessment	24-26
5.1	Water Quality Test Report	
and the second in the second s	Ambient Air Quality Assessment and	27-28
CHAPTER - 6	Management	
6.1	Air Quality Test Report	
6.1	The store of the s	

CHAPTER NO.	TITLE	PAGE NUMBER
CHAPTER - 7	Noise Monitoring	29-29
7.1	Ambient Noise Monitoring Status	
CHAPTER - 8	Rain Water Harvesting System	30-30
8.1	Rain Water Harvesting	
CHAPTER - 9	Electricity Consumption and Management	31-36
9.1	General Details	
9.2	Electrical Details	
9.3	Use of Alternate Energy	
CHAPTER - 10	Waste management	37-39
10.1	Solid Waste	
10.2	Liquid waste	
10.3	E-waste	
CHAPTER - 11	Biodiversity Status of the College Campus	40-54
11.1	Introduction	
11.2	Objective	
11.3	Method of Study	
11.4	Plant Diversity in the College	
11.5	Medicinal Plant in the College Campus	
11.6	Checklist of Reptiles	
11.7	Checklist of Birds	
11.8	Checklist of Mammals	
11.9	Checklist of Ferns and seasonal flowers	
CHAPTER - 12	Green Initiative	55-57
12.1	Plantation Programme	
12.2	Green Computing Practice	
CHAPTER - 13	Consolidation of audit findings	58-59
13.1	Preparation of Action Plan	50.55
13.2	Follow up Action and Plans	
13.3	Environmental Education	
CHAPTER - 14	Conclusion and Recommendation	60-62
14.1	Suggestions	00-02
14.2	Recommendations	
ACKNOWLEDGEMENT		63-63
ISO CERTIFICATE		64-64

12.1



### EXECUTIVE SUMMARY

3

3

4

4

3

12

3

-

5

2

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. Suri Vidyasagar College 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 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 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, management, paperless work, mapping of biodiversity etc. With this in waste 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 Pharal Environment & Ecology PvL Ltd. Parimal Sartion

> > Director

# CHAPTER - 1

# INTRODUCTION

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 organization, management and equipment 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 matters and accept 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 data base 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 is closure.

### 1.3 Goals of Green Audit

1

# 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.
- For 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 selfgoverning 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-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.

- It would help to protect the environment in and around the campus.
- Recognize the cost-saving methods through waste minimization and energyconservation.
- 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 enable waste management through reduction of waste generation, solid and waste.
- 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 University 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 University.
- 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, 3 <sup>rd</sup> 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	<ul> <li>M.Sc. in Disaster Management</li> <li>Post Graduate Diploma in Environmental Law from National Law School, Bangalore</li> <li>Lead Auditor in ISO 14000 (Environmental Management)</li> </ul>
2	Shri Subrata De Sarkar	General Manager	<ul> <li>General Manager in Central Public Sector undertaking.</li> <li>12 years experience in Environmental Auditing</li> <li>Lead Auditor in ISO 50001:2011</li> </ul>
3	Shri Suman Chchattaraj	Environmental Specialist	<ul> <li>M.Tech in Environmental Science</li> <li>20 years experience in Environmental Impact Studies and Auditing</li> </ul>

### Energy Audit Team

SN	Name	Designation/ Qualification	Experience
1	Shri Suvra Majumdar	<ul> <li>Post Graduate Diploma in Energy Management (MBA)</li> <li>B.Tech (Electrical Engineering)</li> </ul>	15 years experience of Energy audit
2	Shri Gautam Ghosh	<ul> <li>Diploma in Mechanical &amp; Electrical Engineering from Calcutta Technical School</li> </ul>	<ul> <li>27 Years experience of working in electrical engineering department in different industries.</li> <li>12 years experience in independent electrical auditing</li> </ul>

### 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

# 1.11 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.

SI. 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

### 1.9 List of Laboratory Instruments for Environmental Monitoring

### 1.10 List of Field Equipment Department

SI. 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

#### SURI VIDYASAGAR COLLEGE

#### 2.1 About the College

Suri Vidyasagar College, named after the famous social reformer, litterateur, and fight for women's empowerment, Pandit Iswar Chandra Vidyasagar, has enter edits 80<sup>th</sup> year of eventful glory, bearing all the storms and buffets since its inception in 1942 as a wing of Vidyasagar College, Kolkata. In 1948, it was elevated to the status of a Degree College and given the name 'Suri Vidyasagar College' under the auspices of Calcutta University. Since 1960, the institute has been associated with the University of Burdwan, and it is presently a constituent College. Former President of the Republic of India, Honourable Shri Pranab Kumar Mukhopadhyay, was an eminent alumnus of this college.

Suri Vidyasagar College has devoted itself since its inception to the goal of imparting higher education, ensuring quality education, and providing research and extra-curricular activities in the best possible manner in order to spread the benefit of higher education in a relatively backward but glorious location. The NSS and NCC wings are doing excellent work in social reform and personality development.

Suri Vidyasagar College is 9.18 acres in size and Buildup area covers approximately 1.183Acre (51,544 Sq. Feet), which is located between the latitudes Latitude of 23°53'47.25"N to23°53'56.70"N and the Longitude of 87°31'57.64"E to 87°32'9.56"E The College is proud of its eco-friendly Green Campus, which houses 22 departments teaching traditional and modern subjects, digital class rooms, state-of-the-art laboratories, a well-equipped Gymnasium, Language laboratory, distance education and open university study centres, the playground, residential accommodation for both teaching and administrative staff, a Post Office, and a Bank, among other things.

Under the University of Burdwan, the college provides 22 undergraduate courses and one postgraduate programme (Zoology). The college has 3870 students, 106 teaching faculty, and 27 non-teaching employees, and it is expected to grow rapidly. The college library is well- equipped with around 55,000 volumes, journals, reprographic machines, and so on, and it is rapidly progressing towards total digitization of its contents under the direction of two Librarians. At the end of 2016, our institute was reaccredited by NAAC with arating of B++, the highest of any institute in the district of Birbhum.

### 2.2 Introduction

Environmental auditing, often known as green auditing, refers to assessments that enable us systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. Environmental compliance and management system short comings, as well as related corrective activities. Green auditing is an effective method for determining how and where the most energy or water resources are being utilised, the type and volume of waste generated, and considerations on how to implement adjustments and save money may then be made. It can raise health awareness while also promoting environmental awareness, morals, and ethics. Overall, it is critical in providing employees and students with a better awareness of the green impact on campus.

#### 2.3 History of College

١.

As far as the historical evidence goes, the first attempt to establish a college in Sun the headquarters of Birbhum district started in the year 1934. Under the tutelage of the then local landlord and educationisti. Shin Amita Ranjan Mukhopadhyay popular doctor Kaligat Banerjee, advocate Babu Harikinkar Samanta and other social activists, a working committee was formed, for this mission. The committee started collecting funds from local residents and it was decided that one of the members. Shn Tuisidas Chakraborty would buy them a large mansion by the name of Bose Saheber Kuthi, which would then form their base and also double up as the perfunctionary college building until a new one comes up. Funds were raised in the tune of twenty thousand rupees But, with time the efforts waned and the funds dwindled. Fresh vigour was again observed in 1940. Under the leadership of Birbhum Zilla Board Chairman Shri Harikinkar Samanta local dignitaries including MLA Shri Debendrahath Das Shn Rampati Basu Maulavi Nurul Absar Md Nake Moktar Abdul Majid Choudhury along with the committee members submitted a deputation to the then Bengal. Prime Minister and Education Minister-in-Charge Fajlul Haque, and petitioned for his assistance to bring up the college

By then, the World War II had started and in India. Calcutta became the prime target of the Japanese. December of 1941 saw fierce bombing on Calcutta by the Japanese forces. This caused widespread panic and people started fleeing Calcutta, for the neighbouring townships and villages. It was these circumstances that set the stage for the inception of Sun Vidyasagar College

In his reminiscence Jyot Kishore Chowdhury, the then Principal of Vidyasagar College Kokata wrote. During those days, fear of bombing was so deep, the college had to be closed and a decision was taken to shift the college eservite/c

With the help of Prof. Tribhangamuran Mondal of Birbhum, plans were chalked out to setup the college at a school in Sainthia, a small township and business place hear Sun. But the efforts proved futile as this was disapproved by the then SDO of Sun. Shin Naren Chowdhury, Instead, he referred them to Dr Kaligati Banerjee of Sun who grabbed the opportunity with both hands. A meeting was called in 1942, at the house of Dr. Kaligati Banerjee, Other than ninsert, the meeting was adorted by such esteemed luminaries as Shin Nityaharayan Bandopadhyay. Shin Umaprasanna Mukherjee (Olu Babu), the president of bar library-Shin Abinash Chandra Mitra. Shin P.C. Chandra, Shin Bankim Mukhopadhyay, Maulayi Nurul Absar, Md. Nake Moktar and Principal J.K. Chowdhury They then assembled at Shri. Amitaranjan's house for further assistance. In this regard, a proposal was placed before the Governing Body of Calcutta Vidyasagar College, which they approved along with an initial funding of Rs 5000/- Furnitures of the women section of I.Sc. Department were sent to Suri via train. Finally, under the guidance of Principal J.K. Chowdhury and with the newly appointed Vice-Principal (Suri campus) Tribhangamuran Mondal at the helm of affairs. Suri Vidyasagar College came into existence. On 9th March, 1942, under the chairmanship of former Calcutta Vidyasagar College student- Shri. Abinash Chandra Mitra, the college started its journey as a branch of "Vidyasagar College". Calcutta Classes started in the house adjoining Shri. Amitaranjan's Kali Temple (Kali Bari), while the new building was being constructed south of the adjoining Banyan Tree of the selected place for the new college. Classes shifted to the new building in June 1942 Total number of students in the 1942-43 batch was 212 only. For them, students hostel were also set up in rented rooms at Kendua Village (known as Kendua Chhatrabas), in the out skirts of Suri After 1948, it became an independent college with the name "Suri Vidyasagar College" The first Principal of the Suri Vidyasagar College was Prof. J. K. Chowdhury from 09 03 1942 to 28 02 50 and the first Vice-Principal was Prof Tribhanga Murari Mondal

The College volunteered for institutional accreditation by NAAC, Bangalore, in November 2005. After analysis the executive committee of the NAAC awarded a grade of B+, on February, 2006. Now, in the second decade of the 21st century, the college stands tall, spreading the message of knowledge and wisdom to the society. Today, spread over an area of 25 Bigha, 5 Katha and 8 chatak, the college consists of 19 Academic Departments out of which 15 offer Honours & General courses, 4 General Courses and 1 P.G. Course in Zoology. In 1996, the total built up area of the college was 29,856 sq. ft. Another 14,755.31 sq. ft. was added between 2001 and 2004. Currently the total built area is around 70,000 sq. ft. which contains classrooms laboratories, library, office, seminar halls, canteen, Gymnasium and students hostels (separate for Boys and Girls).

The College in its second cycle accreditation by NAAC has improved its grade to B++ in 2016 which is a earmark to celebrate its Platinum Jubilee. The institute is now a RUSA 2.0 funded institute. One separate building with four Class rooms has been constructed and Girls Toilet has been renovated and extended with modern amenities. Additional Class rooms have been constructed with the grant from Higher Education Department. Govt. of West Bengal during last five years.

### Location of the College

Location of the College is College Para, Suri, Dist. Birbhum, Pin Code -731 101.

### Communication and Transportation

The College is well connected from Bolpur & Burdwan station and by road The College is located within 1 km from Suri station and 1km away from Suri (NBSTC) Bus stand. Distance from Suri College to Andal Airport is around 61.7 Kms.

### 2.4 Vision of the College:

 Our vision is to go ahead with confidence and courage to educate the students more and more with morality, nobility and magnanimity of soul removing all barriers to comprehensive education of good quality to serve society better. Our Vission: Wisdom, Sacrifice, Service

### 2.5 Mission of the College:

- The declared goals and objectives of Suri Vidyasagar College are: Wisdom. Self-Sacrifice and Social Service (Jnana, Tyaga, Seva) embedded in the Emblem of the college. The missions of the college are.
- Imparting Higher Education.

### 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.

## LAND USE ANALYSIS, SURI VIDYASAGAR COLLEGE, WEST BENGAL

### 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 Suri Vidyasagar College with a view to detect the land consumption in the built-up land area.

### LAND USE DATA OF COLLEGE OF SURI VIDYASAGAR COLLEGE

CATEGORIES OF LAND USE	AREA IN SQ METRES
OPEN SPACE AND PLANTATION	31553.30
Ground Coverage	5615.80
TOTAL AREA	37169.10

Ground coverage of 15.11% ( i.e 5615.80 sq metres) consists of the buildings

#### FINDINGS:

Suri Vidyasagar 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 84.89% of the total area is occupied by open land and plantation that generates a better and sustainable campus environment.

### WATER QUALITY ASSESSMENT CONSUMPTION & MANAGEMENT

Water quality analysis was conducted by Qualissure Laboratory Services

### 5.1 Water Quality Analysis Test Report

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

	Report No	QL5/MR/W/22-23/C/542
Name & Address Of the Customer :	Date	26 10 2022
	Sample No.	_ GLS/MR/W/22-23/542
M/s. Sun Vidyasagar College	Sample Description	Drinking Water
College Para, Suri, Birbhum - 731, 101	Sample Location	Aquaguard Near Principal Office
	Sample Drawn On	03.10.2022
	Date of Performance	05.10.2022-15.10.2022
	The second s	

### Analysis Result

### (A) Microbiological Analysis

51. No.	Characteristic	Limit as per Drinking Water Standard : IS-10500, 2012Amd. 2	Test Method	Result
	Total Coliform Bacteria/100ml	Not Detectable	15 15185-2016	Not Detected
1	Total Lotrorm Bacteria/ accim		15 15185 2016	Not Detected
9	Ecol /100ml	Not Detectable	13 13102 1010	The bettere

#### (B) Chemical Analysis

51.	in the second second	Test Method	As per Drinking Water Standard : IS:10500, 2012Amd. 1 & 2		Result
No.	Test Parameter		Desirable Limit	Permissible Limit	200-1007
		15 3025 (Part 11)- 1984 RA- 2012	65-85	No Relaxation	7.48
1.	pH Value at 25°C	15 3025 (Part 10) - 1984 RA 2012	1	5	<1.0
2	Turbidity in NTU	15 3025(Fart 16) 1984 RA 2012	500	2000	352
3	Total Desaived Solids (TDS) in mg/l	15 3025 (Part 11)- 1984 RA 2012	75	200	59.8
4	Calcium(as Ca) in mg/l	15 3025 (Part 10)- 1984 RA- 2012	250	1000	94.8
5	Chipride as Cil in mg/l	15 3025 (Part 10): 1984 RM 2012	1.0	No Relaxation	0.23
6	from (as fa) in img/l	IS 3025(Part 53)-1988 PA 2014	30	100	33.1
7	Magnesum(as Mg) in mg/l	15 3025 (Part 46) 1994 RA 2014	45	No Relaxation	<0.5
8	Nitrate (as NO.) in mg/l	(\$ 3025 (Part 34) 1986 RA 2014		and the second se	<0.1
9	Free Residual Chiorine in might	(5 3025 (Part 26) 1586(RA 2014)	0.2	10	and the second se
	Sulphate (as \$0,1 in mg/1	(5 3025 (Part 24) 1986, RA 2014	200	400	38.7
10	Support in Forth Lingues	15 3025 (Part 23) 1986, RA 2014	200	600	190.4
11	Alkalinity las CaCO, lin mg/l	15 3025 (Part 37) 1988, RA 2014	0.01	No Relaxation	<0.0
12	Total Arsenic(as As) in mg/l	15 3025 (Part 21)-1963, RA 2014	200	600	286.0
11	Total Hardness (as CaCO,) in mg/T	12 3052 (1.94 211-1303) inc 1014		0.00	



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

Anjeccii

(Benimadhab Gorai) Authorized Signatory

### Drinking water facility at Suri Vidyasagar College

The water that is utilised for drinking is clean and well-maintained. Six RO water filters have been built on our college campus to provide safe drinking water, two of which include chilling facilities. A solar energypowered water tank connection is available for emergency use at the Girls' Hostel and Quarter. Except for one or two instances, no water is lost during the survey as a result of leaks or overflow from overhead tanks. Moreover water is released from each water reservoir regularly and cleaned at regular interval to maintain the hygiene of the tank.



Fig. 1 : Drinking water facility of the College Campus

(A) Water source for Gardening, (B) Tubewell, (C-D) Water filter with basin, (E) Small pump for drinking water, (F) Meters in Pump House, (G-H) Water Cooler with purifier, (I-J) Solar power-driven water pump with tank.

### TEST REPORT

		alc/110/14/122.23/C/471
Name & Address Of the Customer :	Report No.	: QLS/MR/W/22-23/C/471
	Date	: 26.10.2022
	Sample No.	: QLS/MR/W/22-23/471
M/s. Suri Vidyasagar College	Sample Description	: Waste Water
College Para, Suri, Birbhum – 731 101.	Sample Location	:Near Canteen Main Drain
	Sample Drawn On	: 03.10.2022
	Date of Performance	: 05.10.2022-15.10.2022

### Analysis Result

51.	Parameter	TEST METHOD	Result	Limit as per CPCB for discharge of effluents	
No.	Parameter	TEST METHOD		Inland Surface Water	Public Sewers
1	pH at 25°C	APHA 23 <sup>rd</sup> Edition-2017, 4500 H+	7.14	5.5 to 9.0	5.5 to 9.0
2	Total Suspended Solid in mg/l	APHA 23 <sup>rd</sup> Edition-2017, 2540 D	11	100	600
3	Chemical Oxygen Demand (as COD) mg/l	APHA 23 <sup>rd</sup> Edition-2017, 5220B	23	250	
4	Biochemical Oxygen Demand (as BOD) mg/l	IS 3025 (Part 44)-1993, RA:2014	9	30	350
5	Oil & Grease in mg/l	APHA 23 <sup>rd</sup> Edition-2017, 5520A	<1.6	10	20



for Qualissure Laboratory Services Reviewed & Authorized By Anacci

(Benimadhab Gorai) Authorized Signatory

### AMBIENT AIR QUALITY ASSESSMENT AND MANAGEMENT

### 6.1 Air Quality Test Report

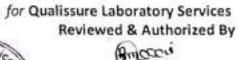
DOC NO : QLS/SAMP/08-A/00

### TEST REPORT

	Report No.	: OLS/MR/A/22-23/C/721
Name & Address Of the Customer :	Date	:26.10.2022
	Sample No.	: QL5/MR/A/22-23/721
M/s. Suri Vidyasagar College College Para, Suri, Birbhum – 731 101.	Sample Description	Ambient Air
college Para, Sun, Beonom - 751 101.	Sample Mark	: Near Principal Room

### Analysis Result

ocation : Near Principal Room			Date of sampling : 03.10.2022-04.10.2022	
Sampl	ng Done by: 8 Mondal		Sampling done as per : CPCB Guidelines (Volume-1)	
Envira	nmental Condition: Cloudy	Average Temperature : 26°C Average Humidity : 41%		
Barom	etric Pressure : 752 mm of Hg			
51. No.	Pollutants	Result	Limit as per CPCB	Method of Test Reference
1	Particulate matter (<10µm) in µg/m <sup>3</sup>	62	100	IS: 5182 (Part-23), RA-2017
z	Particulate matter (<2.5µm) in µg/m <sup>3</sup>	26	60	USEPA CFR-40,Part-50, Appendix-0
з	Sulphur dioxide (SO <sub>1</sub> ) in µg/m <sup>3</sup>	5.9	80	IS: 5182 (Part-2)-2001, RA-2017
4	Nitrogen diaxide (NO2) in µg/m <sup>1</sup>	22.8	80	IS: 5182 (Part- 6)-2006, RA-2017
5	Carbon Monoxide (CO) in µg/m <sup>3</sup>	612	2000	IS: 5182 (Part-10):1999,RA-2014



(Benimadhab Gorai)

Authorized Signatory



### AMBIENT AIR TEST REPORT

DOC NO : QL5/SAMP/08-A/00

### TEST REPORT

Name & Address Of the Customer :	Report No.	: QL5/MR/A/22-23/C/722	
na carrowa	Date	26.10.2022	
M/s. Suri Vidyasagar College College Para, Suri, Birbhum – 731 101.	Sample No.	: QLS/MR/A/22-23/722	
	Sample Description	Ambient Air	
	Sample Mark	: Near Teacher's Room	

### Analysis Result

Location : Near Teacher's Room			Date of sampling : 03.10.2022-04.10.2022	
Sampl	ing Done by: B.Mondal		Sampling done as per	: CPCB Guidelines (Volume-1)
Enviro	nmental Condition: Cloudy		Average Temperature	: 26°C
Barom	etric Pressure : 752 mm of Hg		Average Humidity	: 41%
SI. No.	Pollutants	Result	Limit as per CPCB	Method of Test Reference
1	Particulate matter (<10µm) in µg/m <sup>3</sup>	79	100	15: 5182 (Part-23), RA-2017
2	Particulate matter (<2.5µm) in µg/m <sup>3</sup>	-36	60	USEPA CFR-40, Part-50, Appendix-1
3	Sulphur diaxide (SO <sub>2</sub> ) in µg/m <sup>3</sup>	6.3	80	IS: 5182 (Part-2)-2001, RA-2017
4	Nitrogen diaxide (NO1) in µg/m*	24.2	80	IS: 5182 (Part- 6)-2005, RA-2017
5	Carbon Monoxide (CO) in µg/m <sup>3</sup>	651	2000	IS: 5182 (Part-10):1999,RA-2014



for Qualissure Laboratory Services Reviewed & Authorized By

> (Benimadhab Gorai) Authorized Signatory

NOISE MONITORING

### 7.1 Ambient Noise Monitoring Status:

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

### TEST REPORT

Name & Address Of the Customer :	Report No.	QLS/MR/A/22-23/C/811	
	Date	26.10.2022	
M/s. Suri Vidyasagar College	Sample No.	QLS/MR/A/22-23/811	
College Para, Suri, Birbhum - 731 101.	Sample Description	Ambient Noise	

Sampling D	Ione By:B.Mondal			
Sampling G	Guideline : As per IS:	9876: 1981 (RA-2001)		
Sample No.	Date of Monitoring	Location	Leg dB (A) Day Time	Leg dB (A) Night Time
811	03 - 04.10.2022	Near Principal Room	55.1	44.2

Code/ Category	Leq dB (A)Day Time	Leq dB (A)Night Time	
A/Industrial	75	70	NOTE:
8/Commercial	65	55	Day Time : 05.00 Hr 22.00 Hr.
C/Residential	55	45	Night Time : 22.00 Hr 06.00 Hr
D/Ecological Sensitive	50	40	

slienO

for Qualissure Laboratory Services Reviewed & Authorized By

(Benimadhab Gorai) **Authorized Signatory** 

### RAIN WATER HARVESTING SYSTEM

The primary goal of rain water harvesting at Suri Vidyasagar College Campus is to raise ground water levels by collecting and storing rain water from roof top run-off. The College lies in a semi-arid and sub-humid zone. The campus'ss oil is lateritic in nature. The soil is exceptionally porous and has a high capacity for in filtration. In our campus rain water harvesting system has been installed at Aurobinda Bhavana. The roof runoff water is collected through network of pipe lines and store it within two large tanks situated at ground level in front of Aurobinda Bhavana. This stored rainwater is used for cleaning and gardening purpose..

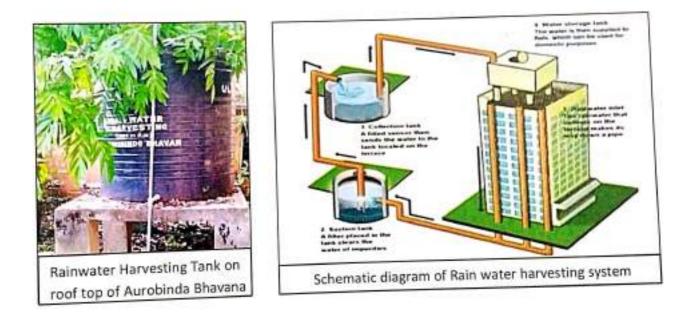


Fig. 2 : Rain Water Harvesting System

### ELECTRICITY CONSUMPTION (IN UNIT) AND MANAGEMENT

#### 9.1 General Details:

SLNo.	PARTICULARS	DETAILS	
1	Name & Address of College	Suri Vidyasagar College College Para, Suri, Birbhur	n West Bengal 731101
	Web Site	https://surividyasagarcolleg	
2	Name of Contact Officer	Dr. Tapan Kumar Parichha	
	Designation	Principal	
	Name of Alternative Officer	Dr. Anirban Paul	
	Designation	IQAC Coordinator	
3	Telephone No. Mobile No.	NA 9932360261	
	Fax No. e-mail ID	svctkp@gmail.com	
	No. of shift (Morning & Day)	7am to 5pm	
	No. of Employees (Approx)	105	
4	Electricity Consumption	Imported (Purchased) 2879	
5	Specific Energy Consumption	Fuel	Electricity
,	specific tanking	2319/-	Rs. 23,249/- (Per (month)
6	LPD	6,174/-	
7	EPI	0.14	

### 9.2 Electrical Details

### a) Transformers

No. 1
N/A
N/A
N/A

### b) Electricity Consumption

		Demand
	Particulars	
A	Contract demand KVA	20.10
Δ		20.10
В	Maximum demand	24554
C	Total Energy units consumed / year	34554
20	Avg. Power Factor(P.F.)	0.97
D		Rs.23,249/-
Ē	Avg. Energy bills(Rs/month)	(ALLO P. 11)

# c) Detailed list of Electric Motors operating in the college

S.NO.	NAME OF THE PLANT	RATING OF MOTOR (KW)	NO. OF MOTORS
	Suri Vidyasagar College,	3.34	4 nos.
S - 1	Suri, Birbhum		

 $\mathcal{T}_{i}$ 

### d) Connected Load

	EQUIPMENT	TOTAL NUMBE RS	LOAD IN KW (TOTAL)
A	Motors : Greater than 10kW	NIL	NIL
	: Less than 10 kW	4Nos.	3.34 KW
в	AC & Ventilation with TR capacity		
a)	Others (Package ACs/ Split ACs / Windows ACs) with TR	Room AC of type – 50.99	Split/Window
С	Total Process Load (in kW)	54.33 KW	
D	Total Lighting Load (in kW) & Luminaries details	(LED+T/L+ Tube Light, etc.= 27.06 I	
_	Total Load (in kW)	127.77 KW	

Δ.	Lux V	leasurements :
	8-254-55-57	Contraction of the second s

SLno.	Room	LUX level	Remarks
Juno.			
1.	Arabinda Bhayan	300,299,301,295,296	
	Ground Floor	300,299,301,295,290	
	1 <sup>st</sup> floor	301.301.302,305.303	
	2 <sup>nd</sup> floor	297,300,302,312,303	
2	Rabindra Bhayan	201 201 201 200	
	Ground Floor	305.304.303.294.299	
	1 <sup>in</sup> floor	304,302,290,302,306	
3.	Auditorium (New hall)	100000	
	Ground Floor	295.303.304.300.304	
4	Gandhi Bhavan		
	Ground Floor	301.304.305.298.296	
	1" floor	306,304,300,299,306	
5	Vivekananda Bhavan		
	Ground Floor	303.304.306.310.299	
	1 <sup>st</sup> floor	298,286,301.305,304	
6	Humanities Building		
20	Ground Floor	302,304.312,309,300	
	1 <sup>d</sup> floor	298,296,304.308,299	
7	Administrative Building		
	Ground Floor	301.310,314,298,296	
	1" floor	310,308,314,298,306	
8	Rabindra Chatravas		
0	Ground Floor	298,296,300,297,301	
	1" floor	301,298,300,299,302	
9	Mrinalini Chatriniwas		
	Ground Floor	297.296.298.294.300	
	1 <sup>2</sup> floor	302,301,299,297,300	
10	Micro Biology		
10	Ground Floor	305,306,304,301,304	
	1" floor	298,303,302,300,298	
11	NSOL Building		
11	Ground Floor	312,305,306,300,301	
	1º floor	305,308,304,306,308	
17	RUSA	**************************************	
12.	Ground Floor	299,300,304,306,307	
	1 <sup>st</sup> floor	300.302.304.309.303	

Illumination	Level	Comparison
--------------	-------	------------

mination Level Comp		NBC Recommended
Area	Average Lighting Level	
	(LUX)	300-500
Arabinda Bhavan	301	300
Rabindra Bhavan	300	300
Auditorium (New hall)	301	300
Gandhi Bhavan	301	300
Vivekananda Bhavan	301	300
Humanities Building	303	
Administrative Building	305	300
	299	300
Rabindra Chatravas		300
Mrinalini Chatriniwas	298	300
Micro Biology	302	300
NUMBER OF STREET, STREE	305	
NSOU Building	303	300
RUSA	505	· I ald light

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

٦

7

### 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.

For reducing carbon emission, and dependence on fossil fuel, the institution has resorted to using green energy by harnessing solar power.

Generated power is transferred to the grid.

This helps in reducing carbon emission.



Fig. 3 : Solar System

#### 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

Suri Vidyasagar College has set up separate bins to ensure proper segregation and collection of the biodegradable, non-biodegradable and hazarders 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, which and brown papers, batteries, print cartridges, cardboard, furniture, damage pen, carbon papers etc are either sold to vendors for recycling or despatch via municipality disposal van in regular basis. The biodegradable waste such as humas, rest portion of vegetables etc. which are used in college canteen, Staff quarters and Boys' and Girls' hostels are used for preparing bio fertilizers.

Vermi compost units are observed near New Hall for fertilizers also. College has developed few good practices, such as single sided used papers are reused for writing and printing in all the departments to minimize the usage of papers. Very less plastic waste (0.1Kg/day) is generated by some departments, office, garden etc and campus is declared as Plastic Free zone. Metal waste and wooden waste is stored and sent to authorize scrap agents for further processing. Glass bottles are reused in the laboratories.



### Fig. 4 : Solid Waste

(A) Dustbin for solid and liquid waste, (B) Large dustbin for solid non-biodegradable waste product;

(C) Reservoir for Solid bio-degradable waste product; (D) Vermi compost units (E) Disposed of waste product storage bags carrying van from Suri municipality by NCC

#### 10.2 Liquid Waste

The source of wastewater is Domestic Waste Water i.e., Sewage water. The Sewage water mainly comes from laboratory of different departments, toilets of college, hostel, kitchen and canteen. Those waters are used for gardening purpose.

63

#### 10.3 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.

E-Waste is accumulated in a separate room, stock of such waste as on date is quite substantial.

### BIODIVERSITY STATUS OF THE COLLEGE CAMPUS

#### 11.1 Introduction

Suri Vidyasagar College campus is very rich in the term of 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 biodiversity of an area so that the local people can be aware of the richness of biodiversity 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:

- Documentation of the floral diversity of the area: its trees, herbs, shrubs, climbers and aquatic vegetations.
- Documentation of the major faunal groups like mammals, reptiles, amphibians, birds and among the insects, butterflies and dragonflies.
- Documentation of the specific interdependence of floral and faunal life.

### Survey Area

The green area of Suri Vidyasagar College covers approximately 3.96 acres out of 9.18 acres, which is about 43.15 percent of the total area, and is strategically distributed across different sections of the campus. The green spaces include gardens, courtyards, an open field, and a play ground, providing ample opportunities for relaxation, outdoor activities, and study in gina natural setting.

#### Location Map

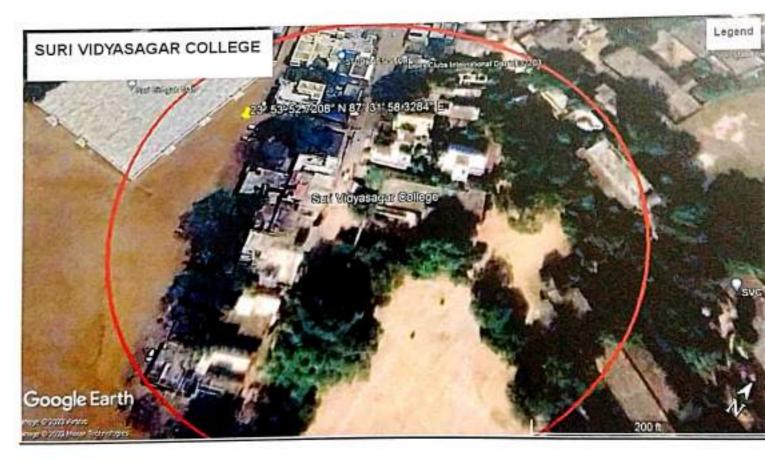


Fig. 5 : Location map

### 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) Guive, such as the second of the second of
- 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

Suri Vidyasagar College premises having about 39.54 acres of land have unique plant diversities. These include flowering plants, leafy trees, medicinal herbs and innumerable wild bushes.

These plants are listed and depicted as following:

和学校長年 Defants regar (Bojer ex Hook.) Raf Family Fahaceae: Clade Rosids	बान्मतनाठि Cossia fistula I. Family Fabaceae. Clade Rosids	Renford Served Hamed (Lam.) H S Irwind:Bameby Family Fabaceae, Clade Rosids
মেহগলি Swierenia mahagani E.i Jacq Family Meliaceae, Clade Rouds	ቅሳቅይይገ PeltopharumpterocarpiumDC i Backet es K Heyne Family Fabaceae, Clade Roads	ৰকুন Minuropselengi L Family Sapotaceae, Clade Astends
শিশু Dalbergai sissooRosh ex DC Family Fabaceae, Clade Rosids	শিরিষ <i>Albicia lebbeck</i> L i Benth Family Fabaceae Clade Rosids	(দৰদারু Monoonlong(folium (Sonn.) B. Xue & R.M.K. Saunders Family: Annonacese Clade Magnoluds
बाउँ	দ্যতিম	লিম
Canarina equicenfolia I.	<i>Alisomascholaris</i> (L.) R. Br	Acadinachta indica A. Juss
Family Casuarinaceae Clade Rossds	Family: Apocynaceae, Clade: Astends	Family Meliaceae, Clade Rosids
इंट्रिक्यानिभट्टाम	সেগুল	বট্ট
Eucalyptus tereticornis Sm	Tectona grandal. 1	Ficus benghalensis L
Family Myrtaceae, Clade Rosids	Family Lamaceer Clade Asterids	Family Moraceae Clade Rosids
পাকুত	তাম	ভাল
Ficui virentAdon	Mangylera indica L	Borassus flabellifer L
Firmls Miraceze Clade Rosids	Family Anacardiaceae, Clade Ronids	Family Atecaceae Clade Commelinid
শারেস্সের	5명원이	নাগরিসম
Glovendrasepower/Jacq.) Kunth	Tecomo stans (L. ) Juss ex Kunth	CouroupitaguianenimAubl
Family Fabaodae Clade Rosida	Family Bignoniaceae Clade Astends	Family Lecythidaceae Clade Asterids
(국편	কাঠ-বাদাম	Ach
Aegle marmelos (L.) Cottea	Terminalia catappa L	MorandacoreiaBuch-Ham
Farmiy: Rutaceae, Ciade, Rosids	Family Combretaceae, Clade Rosids	Family Rubiaceae Clade Astends
Kurchi HolorrhenapubetcentWall.cx.G.Don Family Apocynaceae.Clude Asterids		

# List of the Major Plants of the Garden



Fig. 6 : Major plants in the campus area



1. Heliotropium indicum



3. Gymnema sylvestre



5. Asystasia gangetica



MEDICINAL GARDEN



6. Hygrophila spinosa



2. Impatiens balsamina



4. Pergularia daemia



7. Anisomeles indica



8. Hyptis suaveolens



9. Leonotis nepetifolia

### 11.5 Medicinal Plants in the Campus:

A number of plants with medicinal properties are growing in the campus, specially in the medicinal plant garden.

ŝł.	Common Name	Scientific name	Uses
No.	Provide State	Justicia adhatoda	Couth, colds, asthma, bronchodilator
1	Basak	Achyranthes aspera Linn	Anti inflammatory and uterine stimulant activity
2	Apang	Achyrannes aspora chin	
3	Kalmech	Andrographis paniculata (Burm t.)	Fever dysentery dyspepsia, improves inter function, Leaves – in case of irregular stool losss of appetite roots – given to children to
4	Harjora	Cissus quadrangularis Linn Syn Vitis quadrangularis	Leaves – in bowel complaints, stern to cure scurvy irregular menstruation, asthma, sap applied externally on forehead to cure one-
5	Amlaki	Emblica officeinalis Gaertn	Fruits - treat vomiting, leprosy, piles, anaemia
6	Ramtuls	Ocimum gratissimum Linn	Leaves - Decoction of the leaf applied to rear septic wounds. Seeds - soaked in water and taken very cooling and refreshing drink
7	Jaba	Hibiscus rosasinensis Linn	Flowers – in black colour of hair female disease, leaves – soothing, used in growth of bair. Roots – in cold
8	Telakucha	Coccinia grandis (Linn.) Voigt	Roots – in case of vomiting, burning sensation of hands and feet. Leaves – in cough and skin disease
_	the strange with the	Wythama somnifera	Root Leaf Fruits and Seed
9	Arshagandha	Calotropis agigantea	Bark, Root, Leaf, Latex, Flower
10	Akanda	Eupatonum triplinerve	Whole Plants
11	Ayapan	Ocumum sanctum	Leaf
12	Tulsi	Murraya koenigii	Root, Leaf, Fruit
13	Kari pata	Barlena lupulina	Leaf
14	Bisallakaroni	Hygrophila schulli	Whole plant
15	Kulephara	Gymnema sylvestre	Root, Leaf, Fruit
16	Gurmar	Aloe vera	Leaf
17	Grikumari	Cantella asiatica	Leaf
18	Thankuni	Catharanthus roseus	Whole Plants
19	Nayantara	Azadirachta indica	Bark, Leaf, Yound Stem, Unnpedfuit, Seed Oi
20	Neem	Adhatoda vasika	Leald Flower, Bark, Root
21	Basak	Gendarussa Vulgans	Leaf
22 23	Bisllakarani Bel	Aegle marmelos	Root, Young Leaf, Flower, Ripe and Unriped Fruit
24	Sarpagan Jha	Raunolfia serpentina	Leaf
25	Sughni	Marsilea minuta	Whole Plant
25	Karabi	Nenum odorum	Root Leaf Bardk, Stem
20	Black Tulsi	Ocimum tenuiflorum	Whole Plant, Leaf, Seed
28	Muthagrass	Cyperus rotundus	Root







11. Martynia annua



12. Vitex negundo



13. Clerodendrum viscosum



16. Operculina turpethum



14. Evolvulus alsinoides



17. Euphorbia tirucalli



15. Ipomoea pes-tigridis



18. Ricinus communis

Fig. 7 : Medicinal plants

# 11.6 Checklist of Reptiles:

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



Fig. 8 : Reptiles

## 11.7 Checklist of Birds:

A total of 63 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 i	Scientific Name
SI. No.	Common Name	and a server furgicallis
3	Indian cormorant	Phalacrocorax fuscicollis
2	Little cormorant	Microcarbo niger
3	Little Egret	Egretta garzetta
4	Cattle Egret	Bubulcus ibis
5	Black Kite	Milvus migrans
6	Black shouldered kite	Elonus axillaris
7	Common kestrel	Falco tinnunculus
8	Shikra	Accipiter badius
9	White breasted water hen	Amaurornis phoenicurus
10	Pond Heron	Ardeola grayii
11	Common sandpiper	Actitis hypoleucos
12	Yellow Footed Green pigeon	Treron phoenicoptera
		Columba livia
13	Rock pigeon	Spilopelia chinesis
14	Spotted dove	Streptopelia capicola
15	Ring necked dove	Psittacula eupatria
16	Alexandrian parakeet	Cuculus canorus
17	Common Cuckoo	Athene brama
18	Spotted Owlet	Halcyon smyrnensis
19	White throated Kingfisher	Alcedo atthis
20	Small blue Kingfisher	Pelorgopsis capensis
21	Stork billed Kingfisher	Ceryle rudis
22	Pied Kingfisher	Upupa epops
23	Common Hoopoe	Merops leschenaulti
24	Chestnut headed Bee-eater	Merops orientalis
25	Green Bee-eater	Dinopium benghalense
26	Black-rumped Flameback	the second se
27	Brown-capped Pygmy Woodpecker	Yungipicus nanus
28	Coppersmith Barbet	Megolaima haemacepholo
29	Blue throated Barbet	Megalaima asiatica

Total bird species encountered in the college campus.

SI. No.	Common Name	Scientific Name
30	Lineated Barbet	Megalaima lineata
31	Brown-capped Woodpecker	Dendrocopos nanus
32	Brown Shrike	Lanius cristatus
33	Long tailed Shrike	Lanius schach
34	House Sparrow	Passer domesticus
35	Black hooded Oriole	Oriolus xanthornus
36	Golden Oriole	Orious oriolus
37	Black Drongo	Dicrurus macrocercus
38	Bronze winged Drongo	Dicrurus aeneus
39	Common Myna	Acridotheres tristis
40	Asian pied Starling	Gracupica conta
41	Chestnut tailed Starling	Sturnia malabarica
42	Jungle Myna	Acridotheres fuscus
43	Rufous Treepie	Dendrocitta vagabunda
44	Common Crow	Corvus brachyrhynchos
45	Red vented Bulbul	Pycnonotus cafer
46	Red whiskered Bulbul	Pycnonotus jocosus
47	Common Prinia	Prinia inornata
48	Ashy Prinia	Prinia socialis
49	Common Babbler	Turdoides caudata
50	Brown breasted Flycatcher	Muscicapa muttui
51	Taiga Flycatcher	Ficedula albicilla
52	Tailorbird	Orthotomus sutorius
53	Bluethroat	Luscinia svecica
54	Pied Bushchat	Saxicola caprata
55	Oriental Magpie robin	Copsychus saularis
56	Pale billed Flowerpecker	Dicaeum erythrorhynchos
57	White Wagtail	Motacilia alba
58	Pied Wagtail	Motacilla alba
59	Yellow Wagtail	Motacilla flava
60	Citrine Wagtail	Motacilla citreola
61	Purple rumped Sunbird	Leptocoma zeylonica
62	Silver billed Munia	lonchura punctulata
63	White throated Fantail	Rhipidura albicollis.





## 11.8 Checklist of Mammals:

		10 10 10 10 10 10 10	Bengali name
SI. No.	Common name	Scientific name	Kathberali
1	Indian palm squirrel	Funumbulus sp.	
0	the second se	Suborder megachiroptera	Badur
2	Frugivorous bat	Suborder megerschiroptera	Chamchike
3	Insectivorus bat	Suborder microchiroptera	Indur
4	House mouse	Mus musculus	
5	Rat	Rattus norvegicus	Dhere indur



Fig. 10 : Mammals

SI. No.	Local Name	Common Name	Scientific Name
1.	Bird-nest-Fern	Bird-nest Fern	Asplenium sp.
2.	Fern sp.	Fishtail Fern	Microsorum
3.	Fishtail Fern		punctatum Drynaria quercifoila
4.	Oakleaf Fern	Oakleat Fern	Antimhinum majus
5.	Dog flower, Snadragon	Dog flower, Snapdragon	
6.	Garden stock, Common stock	Garden stock, Common stock	Matthiola incana
7	the second se	Gazania	Gazania sp.
7.	Gazania	Gladiolus	Gladiolus sp.
8. 9.	Gladiolus 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
13.	Verbena	Verbena	Verbena sp.













Fig. 11 : Flowers of the college premises



Tree Plantation by respected Principal Sir, Dr. Tapan Kumar Parichha with students of Suri Vidyasagar College on the celebration of 22<sup>th</sup> Srabon, organized by Department of Philosophy, Suri Vidyasagar College.



Tree Plantation by respected Principal sir and faculty member and respected guest on the occasion of Chess day celebration at Suri Vidyasagar College, organized by Department of Physical Education, Suri Vidyasagar College

Fig. 12 : Plantation programme

#### CHAPTER - 12

#### GREEN INITIATIVES

Suri Vidyasagar 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

111

Plantation programme of Suri Vidyasagar College promotes environment management and conservation in the college campus with the following objectives:

- To motivate the students to keep their surroundings green and clean by undertaking plantation of trees.
- Promote ethos of conservation of water by minimizing the use of water.
- 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.

## 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<sub>2</sub>. 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. Suri Vidyasagar 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. Suri Vidyasagar Colleges hold 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.

## 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 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.

- 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.

#### 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.
- Adopt the proposed Environmentally Responsible Purchasing Policy, and work towards creating and implementing strategy to reduce the environmental impact of its purchasing decisions.
- Increase reduce, reuse, and recycle education on campus.

#### 14.2 Recommendations:

- An environmental policy document has to be prepared with all the recommendations and current practices carried by the Institution
- Regular checkups and maintenance of pipes, overhead tanks, and plumbing systems should be done by the engineering section to reduce overflow leakages, and corrosions
- Avoid plastic/thermocol plates and cups in the college level or department level functions
- Noise level monitoring shall be done as per the guideline of "Noise Pollution (Regulation and Control) Rules '2000'
- Awarness among students and staff about green environment shall be done use tools like display boards
- f) The surroundings of the College should be keep clean
- g) Declare the campus plastic free and implement it thoroughly
- The Biodiversity is to be maintained whole considering the plantation in future

#### Fire Extinguisher

Calibration should be done before the expiry date of calibration

#### Medicinal Garden

Medicinal Garden should be keep clean Systematic plantation program should be drawn and implemented

## Energy Consumption

- Replace incandescent and CFL lamps with LED Light
- Replace LCD computer monitors with LED monitors
- Cleaning of tube lights/bulbs should be do neon a regular basis to remove dust

Some Prove Environment & Erology Put Lis Parimal Barrer Incular

#### Drinking Water

- Adequate number of taps for safe drinking water should be placed at strategic locations.
- Drinking water, Waste water quality monitoring is to be conducted through approved vendor of the West Bengal Pollutin Control Board (WBPCB).

#### Ponds

The ponds should be cleaned every year.

#### Solid Waste

Vermy compost is available near by Girls hostel, it should be use regularly.

#### Liquid Waste

- A waste water treatment plant should be installed to recycle and reuse the waste water generated from domestic use.
- College committee should be care that no contaminated water or chemical get into the soil.

#### E-Waste

- A separate enclosure needs to be made for storage of scrap and E-waste materials.
- As per the guidelines of Pollution Control Board, (P.C.B.) E-Waste is to be disposed of through approved vendors of the P.C.B.
- > The College should take steps for disposal through the approved vendors.

#### Rain Water Harvesting System

- Plan to install rain water harvesting system on rooftop of every building of this college campus and recharging more amount of ground water level.
- Overflow must be monitored and controlled, and supervision exercises should be scheduled on a regular basis.

Sonar Charat Environment & Ecology Pvt. Ltd Parimal Samon

Director

# 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.

Our special word thanks are extended to:

- 1. Dr. Tapan Kumar Parichha Principal
- 2. Dr. Sujoy Das Assistant Professor of Mathematics & Co-ordinator of IQAC
- 3. Dr. Anirban Paul Assistant Professor of Botany & Convenor Green Audit Team
- Dr. Soumya Ranjan Bhattacharyya, Associate Professor, Dept. of Physics.
- 5. Dr. Hemanta Saha Assistant Professor of Botany & A.N.O., NCC
- 6. Dr. Tanmoy Mandal Assistant Professor of Plant Protection & P.O., NSS
- 7. Sri Pankaj Roy Assistant Professor of Chemistry
- 8. Sri Shamim Alam Assistant Professor of Botany
- 9. Sri Ranajit Ghosh State Aided College Teacher of Geography
- 10. Sri Subhas Chandra Mondal Accountant

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

Sonar Bherel Environment & Ecology Pvt. Ltd. Parimal sarker

Director



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

# Sonar Bharat Environment & Ecology Pvt. Ltd.

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	83	1st Surveillance due	13.10.2023
	IND/QMS/NAB-C3313/3200	2nd Surveillance due	13.10.2024
Attachment(s)	None		

irasimhaiah Director

Certificate of compliance has an expiry period of 3 years from the current certification cycle start date but shall be considered as expired at 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. Ed. Certificate of compliance shall be updated in website/registery as suspended and/or withdrawn if the surveillance programme prior to the due date indicated alsee a 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. Ed. prior is the plasmed such schedule.

Corporate Office - Patterian City, G/13/05, See # 02, Next to CMIL HMI Board, Yeshwanthpur Post, Bangalore - Softi22, India Tel: +91(90) 41172732, 41277353, 41280347, Fesail: incorporate/higoglobal.com Website - www.agoglobal.com EDV: U741466 A22020/ICD1081 Please start were agoglobal com to verify the authenticity and validity of this certificate of compliance Of -12A Rev 03 date 04 12.2019







#### SONAR BHARAT ENVIRONMENT & ECOLOGY (P) LIMITED (ISO 9001:2015 CERTIFIED COMPANY) ISO Certificate No. IND/QMS/NAB-C3313/3200

O Certificate No. IND/QMS/NAB-C33/13/32 Registered Office: Flat No. 1A N368, Baishnabghata Patuli, Kolkata -700 094 Head Office: 35 Chitaranjan Avenue, 3<sup>el</sup> Floor Kolkata - 700012 Phone : (91-33) 2211 – 3034/0397, 033 4003 1179, E-mail : <u>sonarbharat2010@qmail.com</u> sonarbharat2017@qmail.com

Date: 03.11.2022

#### GREEN AUDIT CERTIFICATE

- Name of Work Project
- Green Audit of Suri Vidyasagar College
   College Para, Suri, Dist. Birbhum, West Bengal 731 101.
- Duration of Audit : 28.09.2022 to 29.09.2022
- Period of Audit : 2021-2022
- Sonar Bharat Environment & Ecology Pvt. Ltd. has conducted Green Audit in the campus of Suri Vidyasagar College, College Para, Suri, Dist. Birbhum, West Bengal – 731 101..
- With the cooperation of faculty members and other staff audit has been successfully completed.

Barral

Subrata Desarkar (Auditor)



Parinel Sarkan

Parimal Sarkar (Director)







#### SONAR BHARAT ENVIRONMENT & ECOLOGY (P) LIMITED (1SO 9001:2015 CERTIFIED COMPANY) ISO Certificate No. IND/QMS/NAB-C3313/3200

SO Certificate No. IND/QIMS/NAB-C3313/32 Registered Office: Flat No. 1A N368, Baishnabghata Patuli, Kolkata -700 094 Head Office: 35 Chitaranjan Avenue, 3<sup>el</sup> Floor Kolkata - 700012 Phone : (91-33) 2211 - 3034/0397, 033 4003 1179, E-mail : <u>sonarbharat2010@gmail.com</u> sonarbharat2017@gmail.com

Date: 28.10.2022

#### ENERGY AUDIT CERTIFICATE

- Name of Work Project
- : Energy Audit of Suri Vidyasagar College College Para, Suri, Dist. Birbhum, West Bengal – 731 101.
- Duration of Audit : 04.10.2022 to 05.10.2022
- Period of Audit : 2021-2022
- Sonar Bharat Environment & Ecology Pvt. Ltd. has conducted Energy Audit in the campus of Suri Vidyasagar College, College Para, Suri, Dist. Birbhum, West Bengal - 731 101.
- With the cooperation of faculty members and other staff audit has been successfully completed.

Sama Mayunder

Sonar Rharat Environment & Ecology Pvt. Ltd.

Parimal sanker

Suvra Majumda. BEE-EA-5723, AEA-221 Chartered Engineer (India) – Electrical Engineering Div.

Parimal Sarkar (Director)







SONAR BHARAT ENVIRONMENT & ECOLOGY (P) LIMITED (ISO 9001:2015 CERTIFIED COMPANY) ISO Certificate No. IND/QMS/NAB-C3313/3200 Registered Office: Flat No. 1A N368, Baishnabghata Patuli, Kolkata -700 094 Head Office: 35, Chiltaranjan Avenue, 3<sup>rd</sup> Floor Kolkata - 700012 Phone : (91-33) 2211 – 3034/0397, 033 4003 1179, E-mail : <u>sonarbharat2010@gmail.com</u> <u>sonarbharat2017@gmail.com</u>

Date: 26.10.2022

## ENVIRONMENTAL MONITORING CERTIFICATE

Name of Work Project

Environmental Monitoring of Suri Vidyasagar College
 College Para, Suri, Dist. Birbhum, West Bengal – 731 101.

- Duration of Audit : 03.10.2022 to 04.10.2022
- Period of Audit : 2021-2022
- Sonar Bharat Environment & Ecology Pvt. Ltd. has conducted Environmental Monitoring in the campus of Suri Vidyasagar College, College Para, Suri, Dist. Birbhum, West Bengal – 731 101.
- With the cooperation of faculty members and other staff audit has been successfully completed.

Barrial

Subrata Desarkar (Auditor)



Parimal Sarkan

Parimal Sarkar (Director)

# THE END

ALC: NOT



>

)





INTERNAL QUALITY ASSURANCE CELL (IQAC)

SURI VIDYASAGAR COLLEGE

COLLEGE PARA, SURI, DIST. BIRBHUM, WEST BENGAL - 731 101.

## CONTENT

•

•

•

•

,,,,

٢,

CHAPTER NO.	TITLE	PAGE NUMBER
one renties	Executive Summary	05-05
CHAPTER - 1	Introduction	06-14
1.1	Green Audit	
1.2	Why Green Audit	
1.3	Goals of Green Audit	
1.4	Objective of Green Audit	
1.5	About criteria 7 of NAAC	
1.6	Benefit of Green Audit on Educational Institute	
1.7	Introduction of Auditing Firm	
1.8	List of Instrument Energy Audit	
1.9	List of Laboratory Equipments for Environmental Monitoring	
1.10	List of Field Equipments in Environment Department	
1.11	General Steps involved in Green Audit	
CHAPTER - 2	Suri Vidyasagar College	15-19
2.1	About the College	
2.2	Introduction	
2.3	History of the College	
2.4	Vision of the College	
2.5	Mission of the College	
CHAPTER - 3	Green Audit Methodology	20-21
3.1	Utility of Green Audit	
3.2	Objectives of the study	
3.3	Methodology	
CHAPTER - 4	Land Use Analysis	22-23
4.1	General overview of the concept of land use	
4.2	Methodology adopted for land use mapping	
CHAPTER - 5	Water Quality Assessment	24-28
5.1	Water Quality Test Report	
CHAPTER - 6	Ambient Air Quality Assessment and Management	29-32
6.1	Air Quality Test Report	

		PAGE NUMBER
CHAPTER NO.	TITLE	33-34
CHAPTER - 7	Noise Monitoring	
7.1	Ambient Noise Monitoring Status	35-35
CHAPTER - 8	Rain Water Harvesting System	
8.1	Rain Water Harvesting	36-41
CHAPTER - 9	Electricity Consumption and Management	AT 7762000
9.1	General Details	
9.2	Electrical Details	
9.3	Use of Alternate Energy	42-44
CHAPTER - 10	Waste management	42.44
10.1	Solid Waste	
10.2	Liquid waste	
10.3	E-waste	15.50
CHAPTER - 11	Biodiversity Status of the College Campus	45-59
11.1	Introduction	
11.2	Objective	
11.3	Method of Study	
11.4	Plant Diversity in the College	
11.5	Medicinal Plant in the College Campus "	
11.6	Checklist of Reptiles	
11.7	Checklist of Birds	
11.8	Checklist of Mammals	
11.9	Checklist of Ferns and seasonal flowers	
CHAPTER - 12	Green Initiative	60-61
12.1	Plantation Programme	
12.2	Green Computing Practice	
CHAPTER - 13	Consolidation of audit findings	62-63
13.1	Preparation of Action Plan	
13.2	Follow up Action and Plans	
	Environmental Education	
13.3	Conclusion and Recommendation	64-67
CHAPTER - 14		050404.1
14.1	Suggestions	
14.2	Recommendations	68-68
ACKNOWLEDGEMENT		69-69
ISO CERTIFICATE		05-05

-9

-9

•

з



3

•

•

9

-

9

~~~~~~

## 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. Suri Vidyasagar College 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 few years back that actively promote various projects for environment protection and sustainability.

3

3

3

3

3

-

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 plantation. waste conservation, tree electricity conservation, 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 Charal Environment & Ecology Pvt. Ltd Parinal Sarva Ducctor

#### 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

3

3

3

3

-

9

9

3

-

3

9

-

•

•

9

2

- 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 data base of green activities for continuous monitoring to assess the success of each of them.
- > To identify future potential liabilities.
- Y 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 is closure.

7

#### 1.3 Goals of Green Audit

ģ

3

3

3

Э

3

3

9

9

3

-9

9

•

3

9

3

2

2

# 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.
- Fo suggest measures to improve biodiversity within the college campus.
- > To monitor the energy consumption pattern of the college.
- Y To assess the quantity of water usage within the college campus.
- Y 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 auditmechanism.

#### 1.5 About Criteria 7 of NAAC

110000

3

3

•

9

-

-

,

National Assessment and Accreditation Council (NAAC) is a selfgoverning 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-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.

- 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.

9

> More efficient resource management.

To create a green campus.

3

3

3

3

3

3

3

3

9

9

9

-

9

-

1

2

- To enable waste management through reduction of waste generation, solid and waste.
- 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 University 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 University.
- Finally, it will help to build a positive impression through green initiatives for the upcoming NAAC visit.

# 1.7 Introduction of Auditing Firm

6 6 6

4

3

-

-

•

-

2

2

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

#### Details of team Member

| Sr.<br>No. | Name                      | Designation/<br>Technical   | Technical Experience<br>/Qualification                                                                                                                                                                                         |
|------------|---------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1          | Shri Parimal<br>Sarkar    | Legal Expert                | <ul> <li>M.Sc. in Disaster<br/>Management</li> <li>Post Graduate Diploma in<br/>Environmental Law from<br/>National Law School,<br/>Bangalore</li> <li>Lead Auditor in ISO<br/>14000 (Environmental<br/>Management)</li> </ul> |
| 2          | Shri Subrata De<br>Sarkar | General<br>Manager          | <ul> <li>General Manager in Central<br/>Public Sector undertaking.</li> <li>12 years experience in<br/>Environmental Auditing</li> <li>Lead Auditor in ISO<br/>50001:2011</li> </ul>                                           |
| 3          | Shri Suman<br>Chchattaraj | Environmental<br>Specialist | <ul> <li>M.Tech in Environmental<br/>Science</li> <li>20 years experience in<br/>Environmental Impact<br/>Studies and Auditing</li> </ul>                                                                                      |

12

#### Energy Audit Team

-

-

,

•

•

,

->

?

| SN | Name                   | Designation/<br>Qualification                                                                                                   | Experience                                                                                                                                                                                                   |
|----|------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Shri Suvra<br>Majumdar | <ul> <li>Post Graduate ·<br/>Diploma in Energy<br/>Management<br/>(MBA)</li> <li>B.Tech (Electrical<br/>Engineering)</li> </ul> | <ul> <li>15 years experience<br/>of Energy audit</li> </ul>                                                                                                                                                  |
| 2  | Shri Gautam<br>Ghosh   | <ul> <li>Diploma in<br/>Mechanical &amp;<br/>Electrical<br/>Engineering from<br/>Calcutta Technical<br/>School</li> </ul>       | <ul> <li>27 Years<br/>experience of<br/>working in electrical<br/>engineering<br/>department in<br/>different industries.</li> <li>12 years experience<br/>in independent<br/>electrical auditing</li> </ul> |

#### 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

| SI. No. | Name of Equipment                                  | Make                        | Model                  |
|---------|----------------------------------------------------|-----------------------------|------------------------|
| 1       | GAS CHROMATOGRAPH<br>WITH FID, TSD.                | VARIAN                      | CP3800                 |
| 2       | GAS CHROMATOGRAPH<br>MASS SPECTROMETER<br>WITH ECD | VARIAN                      | CP 3800<br>SATURN 2200 |
| 3       | GAS CHROMA TOGRAPH<br>WITH FID for Air             | DANI                        | Master GC              |
| 4       | ION CHROMATOGRAPH                                  | Thermo Fisher<br>Scientific | DIONEXICS<br>1100      |
| 5       | H.P.L.C.                                           | VARIAN                      | SERIES 200             |
| 6       | FTIR                                               | Thermo Fisher<br>Scientific | Nicolet IS10           |
| 7       | ATOMIC ABSORPTION<br>SPECTRROPHOTOMETER            | VARIAN                      | AA 2406TA<br>120       |
| 8       | MERCURY ANALYSER                                   | EC                          | MAS 5840               |
| 9       | FLAME PHOTOMETER                                   | LOWERENCE<br>& MAYO         | 381                    |
| 10      | SPECTRO PHOTOMETER                                 | VARIAN                      | CARY 50                |
| 11      | BOD INCUBATOR                                      | MULTISPAN                   | DIGITAL                |
| 12      | ELECTRONIC MICRO<br>BALANCE                        | Citizen                     | CMSF                   |

## 1.10 List of Field Equipment Department

•

-

| SI. No. | Name of Equipment                 | Make                          | Model                     |
|---------|-----------------------------------|-------------------------------|---------------------------|
| 1       | Field Dust Sampler                | Envirotech/Lata<br>Envirotech | APM – 550, PM<br>2.5 & 10 |
| 2       | Respirable Dust Sampler           | Envirotech/Lata<br>Envirotech | APM-460BL                 |
| 3       | Stack Kit Sampler                 | Envirotech/Lata<br>Envirotech | APM-620, PM-<br>602       |
| 4       | Sound Level Meter<br>(AUTOMEDTIC) | Envirotech                    | SLM-101                   |
| 5       | Sound Level Meter                 | Lutron                        | SLM-4001                  |
| 6       | Local Air Quality Sampler         | Vayubodhan                    | APM-414                   |
| 7       | Auto Metric Whather<br>Monitor    | Spectrum<br>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.

-9

-

. 9

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

#### CHAPTER - 2

#### SURI VIDYASAGAR COLLEGE

#### 2.1 About the College

Ì

3

3

3

3

3

3

•

•

9

9

9

3

-

2

2

3

Suri Vidyasagar College, named after the famous social reformer, litterateur, and fight for women's empowerment, Pandit Iswar Chandra Vidyasagar, has enter edits 81<sup>th</sup> year of eventful glory, bearing all the storms and buffets since its inception in 1942 as a wing of Vidyasagar College, Kolkata. In 1948, it was elevated to the status of a Degree College and given the name 'Suri Vidyasagar College' under the auspices of Calcutta University. Since 1960, the institute has been associated with the University of Burdwan, and it is presently a constituent College. Former President of the Republic of India, Honourable Shri Pranab Kumar Mukhopadhyay, was an eminent alumnus of this college.

Suri Vidyasagar College has devoted itself since its inception to the goal of imparting higher education, ensuring quality education, and providing research and extra-curricular activities in the best possible manner in order to spread the benefit of higher education in a relatively backward but glorious location. The NSS and NCC wings are doing excellent work in social reform and personality development.

Suri Vidyasagar College is 9.18 acres in size and Buildup area covers approximately 1.183Acre (51,544 Sq. Feet), which is located between the latitudes Latitude of 23°53'47.25"N to23°53'56.70"N and the Longitude of 87°31'57.64"E to 87°32'9.56"E. The College is proud of its eco-friendly Green Campus, which houses 22 departments teaching traditional and modern subjects, digital class rooms, state-of-the-art laboratories, a well-equipped Gymnasium, Language laboratory, distance education and open university study centres, the playground, residential accommodation for both teaching and administrative staff, a Post Office, and a Bank, among other things.

Under the University of Burdwan, the college provides 22 undergraduate courses and one postgraduate programme (Zoology). The college has 3870 students, 106 teaching faculty, and 27 non-teaching employees, and it is expected to grow rapidly. The college library is well- equipped with around 55,000 volumes, journals, reprographic machines, and so on, and it is rapidly progressing towards total digitization of its contents under the direction of two Librarians. At the end of 2016, our institute was reaccredited by NAAC with a rating of B++, the highest of any institute in the district of Birbhum.

#### 2.2 Introduction

Environmental auditing, often known as green auditing, refers to assessments that enable us systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. Environmental compliance and management system short comings, as well as related corrective activities. Green auditing is an effective method for determining how and where the most energy or water resources are being utilised, the type and volume of waste generated, and considerations on how to implement adjustments and save money may then be made. It can raise health awareness while also promoting environmental awareness, morals, and ethics. Overall, it is critical in providing employees and students with a better awareness of the green impact on campus.

#### 2.3 History of College

3

3

3

3

As far as the historical evidence goes, the first attempt to establish a college in Suri, the headquarters of Birbhum district, started in the year 1934. Under the tutelage of the then local landlord and educationist- Shri Amita Ranjan Mukhopadhyay, popular doctor Kaligati Banerjee, advocate Babu Harikinkar Samanta and other social activists, a working committee was formed, for this mission. The committee started collecting funds from local residents and it was decided that one of the members, Shri Tulsidas Chakraborty would buy them a large mansion by the name of 'Bose Saheber Kuthi', which would then form their base and also double up as the perfunctionary college building until a new one comes up. Funds were raised in the tune of twenty thousand rupees. But, with time the efforts waned and the funds dwindled. Fresh vigour was again observed in 1940. Under the leadership of Birbhum Zilla Board Chairman Shri Harikinkar Samanta, local dignitaries, including MLA Shri Debendranath Das, Shri Rampati Basu, Maulavi Nurul Absar, Md. Nake Moktar, Abdul Majid Choudhury along with the committee members submitted a deputation to the then Bengal 'Prime Minister' and Education Minister-in-Charge, Fajlul Haque, and petitioned for his assistance to bring up the college.

By then, the World War II had started and in India, Calcutta became the prime target of the Japanese. December of 1941 saw fierce bombing on Calcutta by the Japanese forces. This caused widespread panic and people started fleeing Calcutta for the neighbouring townships and villages. It was these circumstances that set the stage for the inception of Suri Vidyasagar College.

In his reminiscence, Jyoti Kishore Chowdhury, the then Principal of Vidyasagar College, Kolkata wrote: 'During those days, fear of bombing was so deep, the college had to be closed and a decision was taken to shift the college elsewhere'.

With the help of Prof. Tribhangamurari Mondal of Birbhum, plans were chalked out to setup the college at a school in Sainthia, a small township and business place near Suri. But, the efforts proved futile as this was disapproved by the then SDO of Suri, Shri Naren Chowdhury. Instead, he referred them to Dr. Kaligati Banerjee of Suri who grabbed the opportunity with both hands. A meeting was called in 1942, at the house of Dr. Kaligati Banerjee. Other than himself, the meeting was adorned by such esteemed luminaries as Shri. Nityanarayan Bandopadhyay, Shri. Umaprasanna Mukherjee (Olu Babu), the president of bar library-Shri Abinash Chandra Mitra, Shri P.C. Chandra, Shri

Bankim Mukhopadhyay, Maulavi Nurul Absar, Md. Nake Moktar and Principal J.K. Chowdhury. They then assembled at Shri. Amitaranjan's house for further assistance. In this regard, a proposal was placed before the Governing Body of Calcutta Vidyasagar College, which they approved along with an initial funding of Rs. 5000/-. Furnitures of the women section of I.Sc. Department were sent to Suri via train. Finally, under the guidance of Principal J.K. Chowdhury and with the newly appointed Vice-Principal (Suri campus) Tribhangamurari Mondal at the helm of affairs, Suri Vidyasagar College came into existence. On 9th March, 1942, under the chairmanship of former Calcutta Vidyasagar College student- Shri. Abinash Chandra Mitra, the college started its journey as a branch of "Vidyasagar College", Calcutta. Classes started in the house adjoining Shri. Amitaranjan's Kali Temple (Kali Bari), while the new building was being constructed south of the adjoining Banyan Tree of the selected place for the new college. Classes shifted to the new building in June 1942. Total number of students in the 1942-43 batch was 212 only. For them, students hostel were also set up in rented rooms at Kendua Village (known as Kendua Chhatrabas), in the out skirts of Suri, After 1948, it became an independent college with the name "Suri Vidyasagar College". The first Principal of the Suri Vidyasagar College was Prof. J. K. Chowdhury from 09.03.1942 to 28.02.50 and the first Vice-Principal was Prof. Tribhanga Murari Mondal.

9

9

9

3

9

3

3

•

9

9

•

•

The College volunteered for institutional accreditation by NAAC, Bangalore, in November 2005. After analysis the executive committee of the NAAC awarded a grade of B+, on February, 2006. Now, in the second decade of the 21st century, the college stands tall, spreading the message of knowledge and wisdom to the society. Today, spread over an area of 25 Bigha, 5 Katha and 8 chatak, the college consists of 19 Academic Departments out of which 15 offer Honours & General courses, 4 General Courses and 1 P.G. Course in Zoology. In 1996, the total built up area of the college was 29,856 sq. ft. Another 14,755.31 sq. ft. was added between 2001 and 2004. Currently the total built area is around 70,000 sq. ft. which contains classrooms, laboratories, library, office, seminar halls, canteen, Gymnasium and students' hostels (separate for Boys and Girls).

The College in its second cycle accreditation by NAAC has improved its grade to B++ in 2016 which is a earmark to celebrate its Platinum Jubilee. The institute is now a RUSA 2.0 funded institute. One separate building with four Class rooms has been constructed and Girls Toilet has been renovated and extended with modern amenities. Additional Class rooms have been constructed with the grant from Higher Education Department, Govt. of West Bengal during last five years.

#### Location of the College

6666

Location of the College is College Para, Suri, Dist. Birbhum, Pin Code - 731 101.

#### Communication and Transportation

The College is well connected from Bolpur & Burdwan station and by road. The College is located within 1 km from Suri station and 1km away from Suri (NBSTC) Bus stand. Distance from Suri College to Andal Airport is around 61.7 Kms.

#### 2.4 Vision of the College:

 Our vision is to go ahead with confidence and courage to educate the students more and more with morality, nobility and magnanimity of soul removing all barriers to comprehensive education of good quality to serve society better. Our Vission: Wisdom, Sacrifice, Service

#### 2.5 Mission of the College:

- The declared goals and objectives of Suri Vidyasagar College are: Wisdom, Self-Sacrifice and Social Service (Jnana, Tyaga, Seva) embedded in the Emblem of the college. The missions of the college are:
- Imparting Higher Education,

#### 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

3

3

3

3

3

3

3 3

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.

# LAND USE ANALYSIS, SURI VIDYASAGAR COLLEGE, WEST BENGAL

## 4.1 General overview of the concept of land use:

.

3

3

3

3

3

3

9

9

9

3

9

,

9

•

•

•

,

7

2

1

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     |  |
|-----------------------|--------------|--|
| . 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 Suri Vidyasagar College with a view to detect the land consumption in the built-up land area.

# LAND USE DATA OF COLLEGE OF SURI VIDYASAGAR COLLEGE

| CATEGORIES OF LAND USE    | AREA IN SQ METRES |
|---------------------------|-------------------|
| OPEN SPACE AND PLANTATION | 31553.30          |
| Ground Coverage           | 5615.80           |
| TOTAL AREA                | 37169.10          |

Ground coverage of 15.11% ( i.e 5615.80 sq metres) consists of the buildings.

#### FINDINGS:

.9

•

-

-

Suri Vidyasagar 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 84.89% of the total area is occupied by open land and plantation that generates a better and sustainable campus environment.

#### WATER QUALITY ASSESSMENT CONSUMPTION & MANAGEMENT

Water quality analysis was conducted by Qualissure Laboratory Services

### 5.1 Water Quality Analysis Test Report

9

9

,

2

|                                                                                                            |                                                                                                                      | DOC NO : QLS/SAMP/08-D/00                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name & Address Of the Customer :<br>M/s. Suri Vidyasagar College<br>College Para, Suri, Birbhum – 731 101. | Report No.<br>Date<br>Sample No.<br>Sample Description<br>Sample Location<br>Sample Drawn On.<br>Date of Performance | : QLS/MR/W/23-24/C/349<br>: 19:07.2023<br>: QLS/MR/W/23-24/349<br>: Drinking Water<br>: Aquagward Near Principal Office<br>: 13:07.2023<br>: 14:07.2023-19:07.2023 |

### **Analysis Result**

#### (A) Microbiological Analysis

| SI.<br>No. | Characteristic                    | Limit as per Drinking Water Standard :<br>IS: 10500, 2012Amd. 2 | Test Method    | Result       |
|------------|-----------------------------------|-----------------------------------------------------------------|----------------|--------------|
| 1000       | Total Colform Bacteria/100ml      | Not Detectable                                                  | (\$ 15185-2016 | Not Detected |
| 1          | Total Cultor III Bacterial Assess | all a Directive big                                             | 15 15185:2016  | Not Detected |
| 2          | E.coll /100ml                     | Not Detectable                                                  | 6 15185: 201e  | NOC DETER    |

#### (B) Chemical Analysis

| SL. |                                                | Test Method                       |                | As per Drinking Water Standard :<br>IS:10500, 2012Amd, 1 & 2 |       |
|-----|------------------------------------------------|-----------------------------------|----------------|--------------------------------------------------------------|-------|
| No. | Test Parameter                                 |                                   | Desirable Umit | Permissible Limit                                            |       |
| 1   |                                                | IS 3025 (Part 11)- 1984 RA: 2012  | 6.5-8.5        | No Relaxation                                                | 7,47  |
| 1.  | pH Value at 25°C                               | IS 8025 (Part 10)- 1984 RA: 2012  | 1              | 5                                                            | <1.0  |
| 2.  | Turbidity in NFU                               | 15 3025(Part 16)- 1964 8A: 2012   | 500            | 2000                                                         | 354   |
| 3.  | Total Dissolved Solids (105) in mg/            | 15 3025 Part 16P 1904 84 2012     | 75             | 200                                                          | \$9.6 |
| 4.  | Calcium(as Ca) in mg/l                         | IS 3025 (Part 11)- 1984 RA: 2012  | 250            | 1000                                                         | 94.2  |
| 5.  | Chloridelas C0 in mg/l                         | 15 3025 [Part 10]- 1984 RA: 2012  | 2              | No Relexation                                                | 0.22  |
| 6.  | Iron (as Fe) in mg/l                           | IS 3025(Part 53)-1988 RA: 2014    | 1.0            |                                                              | 32.9  |
| 7.  | Magnesium(as Mg) in mg/l                       | 15 3025 (Part 46)-1994 RA: 2014   | 50             | 100                                                          |       |
|     | Nitrate (as NO <sub>3</sub> ) in mg/i          | IS 3025 (Part 34)-1986 RA: 2014   | 45             | No Relaxation                                                | <0.5  |
| 8.  | Narate (as Not in mg)                          | IS 3025 (Part 26): 1986 [RA 2014] | 0.2            | 1.0                                                          | 40.1  |
| 9.  | Free Residual Chlorine in mg/l                 | IS 3025 (Part 24)-1986, RA: 2014  | 200            | 400                                                          | 38.4  |
| 10. | Sulphate (as SO <sub>4</sub> ) in mg/l         | 15 3025 [Part 23]- 1986, RA: 2014 | 200            | 600                                                          | 190.0 |
| 11  | Alkalinity (as CaCO <sub>3</sub> ) in mg/l     | 15 3025 (Part 37):1988,8A 2014    | 0.01           | No Relaxation                                                | <0.01 |
| 12  | Total Americlas As) in mg/l                    |                                   |                |                                                              | 285.3 |
| 13. | Total Hardness (as CaCO <sub>3</sub> ) in mg/l | IS 3025 (Part 21)-1983, 8A: 2014  | 200            | 600                                                          | 200.1 |



Reviewed & Authorized By

for Qualissure Laboratory Services

(Benimadhab Goral) Authorized Signatory



•

-

••••

, ,

2 2

Fig. 1 : Drinking water sample collect

## Drinking water facility at Suri Vidyasagar College

9

3

9

9

The water that is utilised for drinking is clean and well-maintained.Six RO water filters have been built on our college campus to provide safe drinking water, two of which include chilling facilities. A solar energypowered water tank connection is available for emergency use at the Girls' Hostel and Quarter. Except for one or two instances, no water is lost during the survey as a result of leaks or overflow from overhead tanks. Moreover water is released from each water reservoir regularly and cleaned at regular interval to maintain the hygiene of the tank.



# Fig. 2 : Drinking water facility of the College Campus

(A) Water source for Gardening, (B) Tubewell, (C-D) Water filter with basin, (E) Small pump for drinking water, (F) Meters in Pump House, (G-H) Water Cooler with purifier, (I-J) Solar power-driven water pump with tank.

## TEST REPORT

99999999

4

9

9

3

•

,

•

9

9

•

9

9

2

2

2

2

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

| Name & Address Of the Customer :                                       | Date                                  | : QLS/MR/W/23-24/C/350<br>: 19.07.2023<br>: QLS/MR/W/23-24/350                       |
|------------------------------------------------------------------------|---------------------------------------|--------------------------------------------------------------------------------------|
| M∕s. Suri Vidyasagar College<br>College Para, Suri, Birbhum – 731 101. | Sample Description<br>Sample Location | : Waste Water<br>:Near Canteen Main Drain<br>: 13.07.2023<br>: 14.07.2023-19.07.2023 |

# Analysis Result

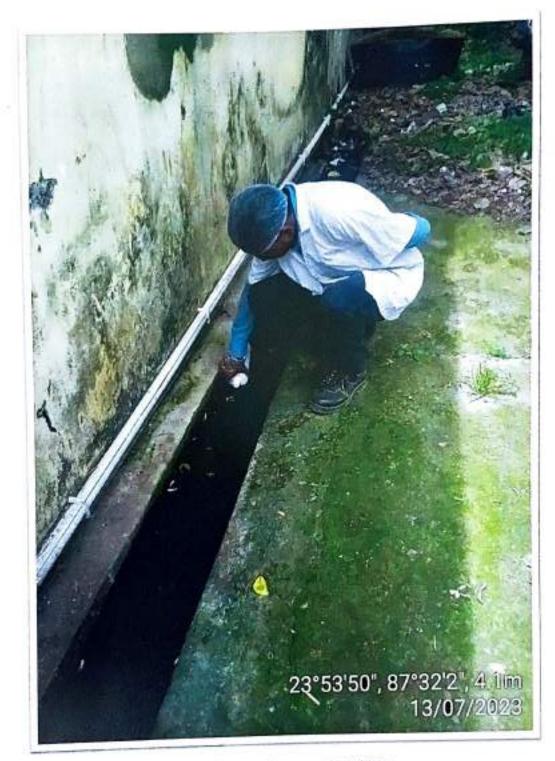
|            | 1                                          |                                                |        | Limit as per CPCB for<br>discharge of effluents |                  |
|------------|--------------------------------------------|------------------------------------------------|--------|-------------------------------------------------|------------------|
| SI.<br>No. | Parameter                                  | TEST METHOD                                    | Result | Inland<br>Surface Water                         | Public<br>Sewers |
| 1          | pH at 25°C                                 | APHA 23 <sup>rd</sup> Edition-2017,<br>4500 H+ | 7.11   | 5,5 to 9.0                                      | 5.5 to 9.0       |
| 2          | Total Suspended Solid<br>In mg/l           | APHA 23 <sup>rd</sup> Edition-2017,<br>2540 D  | 8      | 100                                             | 600              |
| 3          | Chemical Oxygen<br>Demand (as COD) mg/l    | APHA 23 <sup>M</sup> Edition-2017,<br>52206    | 19     | 250                                             |                  |
| 4          | Biochemical Oxygen<br>Demand (as BOD) mg/l | IS 3025 (Part 44)-1993,<br>RA:2014             | 5      | 30                                              | 350              |
| 5          | Oil & Grease in mg/l                       | APHA 23 <sup>rd</sup> Edition-2017,<br>5520A   | <1.4   | 10                                              | 20               |

Ser

for Qualissure Laboratory Services Reviewed & Authorized By

Bolaconi

(Benimadhab Gorai) Authorized Signatory



•

•

~ ~ ~ ~ ~

?

Fig. 3 : Waste water sample collect

AMBIENT AIR QUALITY ASSESSMENT AND MANAGEMENT

## 6.1 Air Quality Test Report

3

3

9

3

3

- 9

•

-

-

•

•

9

•

2

ゥ

2

2

DOC ND : QLS/SAMP/08-A/00

| Name & Address Of the Customer :       | TEST REPORT<br>Report No.<br>Date<br>Sample No. | - OLS/MR/A/23-24/C/619<br>-22.07.2023<br>- QLS/MR/A/23-24/629 |
|----------------------------------------|-------------------------------------------------|---------------------------------------------------------------|
| M/s. Suri Vidyasagar College           | Sample Description                              | - Amblent Air                                                 |
| College Para, Suri, Birbhum - 731 103. | Sample Mark                                     | : Near Principal Room                                         |

## Analysis Result

| locatio    | an : Near Principal Room                                                                                     |                     | Date of sampling : 13.07.2023-14.07.2023          |                                   |
|------------|--------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------|-----------------------------------|
| Sampli     | ampling Done by: 8 Mondal                                                                                    |                     | Sampling done as per : CPCB Guidelines (Volume-1) |                                   |
|            |                                                                                                              | Average Temperature | 2 : 28°C                                          |                                   |
| Enviro     | nmental Condition: Cloudy                                                                                    | 1. 1995 Star        | : 78%                                             |                                   |
| Barom      | atric Pressure : 752 mm of Hg                                                                                |                     | Average Humidity                                  | 1.763                             |
| SI.<br>No. | Pollutants                                                                                                   | Result              | Limit as<br>per CPCB                              | Method of Test Reference          |
| 1          | Particulate matter (<10µm) in µg/m <sup>4</sup>                                                              | 58                  | 100                                               | IS: 5182 (Part-23), 84-2017       |
| 2          | Particulate matter (<2.5µm) in µg/m                                                                          | 19                  | 60                                                | USEPA CFR-40, Part-50, Appendix-1 |
| -          | Sulphur dioxide (50 <sub>2</sub> ) in µg/m <sup>3</sup>                                                      | 5.0                 | 80                                                | 15: 5182 (Part-2)-2001, RA-2017   |
| 4          | Nkrogen diaxide (NO2) in µg/m <sup>1</sup>                                                                   | 22.3                | 80                                                | (S: 5182  Part- 6)-2006, RA-2017  |
|            |                                                                                                              | 595                 | 2000                                              | IS: 5182 (Part-10):1999,RA-2014   |
| 5          | Carbon Monoxide (CO) in µg/m <sup>3</sup><br>Limit as per CPCB notification, New Delhi, 18 <sup>th</sup> Nor |                     |                                                   |                                   |



Reviewed & Authorized By

for Qualissure Laboratory Services

(Benimadhab Goral) Authorized Signatory



3

•

•

-

•

**,** , ,

3

Fig. 4 : Ambient Air sample collect

AMBIENT AIR TEST REPORT

3

3

-

9

-

•

9

•

•

20

9

?

2

2

2

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

## TEST REPORT

| Name & Address Of the Customer :                                       | Report No.         | QL5/MR/A/23-24/C/620  |
|------------------------------------------------------------------------|--------------------|-----------------------|
| and a supervision of the supervision                                   | Date               | 22.07.2023            |
| M/s. Suri Vidyasagar College<br>College Para, Suri, Birbhum – 731 101. | Sample No.         | : DLS/MR/A/23-24/620  |
|                                                                        | Sample Description | 1 Ambient Air         |
|                                                                        | Sample Mark        | : Near Teacher's Room |

## **Analysis Result**

| ocation : Near Teacher's Room |                                                          |                            | Date of sampling : 13 07.2023-14.07.2023          |                                   |  |
|-------------------------------|----------------------------------------------------------|----------------------------|---------------------------------------------------|-----------------------------------|--|
| ampling Done by: B.Mondal     |                                                          |                            | Sampling done as per : CFCB Guidelines (Volume-1) |                                   |  |
| Enviror                       | mental Condition: Cloudy                                 | Average Temperature : 28°C |                                                   |                                   |  |
| Barom                         | etric Pressure : 752 mm of Hg                            |                            | Average Humidity                                  | : 78%                             |  |
| SIL<br>No.                    | Pollutants                                               | Result                     | Umit as<br>per CPCB                               | Method of Test Reference          |  |
| 1                             | Particulate matter (ct:0µm) in ug/m <sup>2</sup>         | 62                         | 100                                               | 15:5182 (Part-23), RA-2017        |  |
| 2                             | Particulate matter (<2.5µm) in µe/m <sup>3</sup>         | 21                         | 60                                                | USEPA CFR-40, Part-50, Appendix-0 |  |
| 3                             | Sulphur disaide (SO <sub>1</sub> ) in up/m*              | 5.2                        | 80                                                | (S: 5182 (Part-2)-2001, RA-2017   |  |
| 4                             | Nitrogen dioxide (NO <sub>1</sub> ) is µg/m <sup>3</sup> | 22.8                       | 80                                                | IS: 5182 (Part-6)-2006, RA-2017   |  |
| 5                             | Carbon Monoside (CO) in ug/m <sup>1</sup>                | 629                        | 2000                                              | IS: 5182 (Part-10):1999,8A-2014   |  |



31

Anicacui



,

•

.

Fig. 5 : Ambient Air sample collect

#### NOISE MONITORING

## 7.1 Ambient Noise Monitoring Status:

9

3

.

.

9

•

•

,

200

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

## TEST REPORT

| Report No.         | : QLS/MR/A/23-24/C/G21 |                                                      |
|--------------------|------------------------|------------------------------------------------------|
| Data               | : 22.07.2023           |                                                      |
| Sample No.         | : QLS/MR/A/23-24/621   |                                                      |
| Sample Description | : Amblent Noise        |                                                      |
|                    | Doto<br>Sample No.     | Dote : 22.07.2023<br>Sample No, : CLS/MR/A/23-24/621 |

| Sampling G | iuideline : As per IS: | 9876: 1981 (RA-2001) |                        |                          |
|------------|------------------------|----------------------|------------------------|--------------------------|
| Sample No. | Date of Monitoring     | Location             | Leq dB (A)<br>Day Time | Leq dB (A)<br>Night Time |
| 621        | 13 - 14.07.2023        | Near Principal Room  | 54.5                   | 41.1                     |

| Code/ Catagory         | Leg dB (A Day Time | Leg dB (A)Night Time |                                               |
|------------------------|--------------------|----------------------|-----------------------------------------------|
| A/industrial           | 75                 | 70                   | <u>NDTE:</u><br>Day Time : 05:00 Hr 22:00 Hr. |
| B/Commercial           | 65                 | 55                   |                                               |
| C/Residential          | 55                 | 45                   | Night Time : 22.00 Mr 05.00 Hr.               |
| D/Ecological Sensitive | 50                 | 40                   |                                               |



for Qualissure Laboratory Services Reviewed & Authorized By

> (Benimadhab Goral) Authorized Signatory



-

Fig. 6 : Noise level monitoring

## RAIN WATER HARVESTING SYSTEM

The primary goal of rain water harvesting at Suri Vidyasagar College Campus is to raise ground water levels by collecting and storing rain water from roof top run-off. The College lies in a semi-arid and sub-humid zone. The campus'ss oil is lateritic in nature. The soil is exceptionally porous and has a high capacity for in filtration. In our campus rain water harvesting system has been installed at Aurobinda Bhavana. The roof runoff water is collected through network of pipe lines and store it within two large tanks situated at ground level in front of Aurobinda Bhavana. This stored rainwater is used for cleaning and gardening purpose.

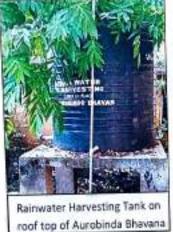




Fig. 7 : Rain Water Harvesting System

# ELECTRICITY CONSUMPTION (IN UNIT) AND MANAGEMENT

## 9.1 General Details:

з

.

.

-

•

•

•

| SLNo. | PARTICULARS                  | DETAIL.                                                                                                         | \$                           |
|-------|------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|
| 1     | Name & Address of College    | Suri Vidyasagar College<br>College Para, Suri, Birbhum West Bengal 7311<br>https://surividyasagarcollege.org.in |                              |
|       | Web Site                     |                                                                                                                 |                              |
| 2     | Name of Contact Officer      | Dr. Tapan Kumar Parichha                                                                                        |                              |
|       | Designation                  | Principal                                                                                                       |                              |
|       | Name of Alternative Officer  | Dr. Sujoy Das                                                                                                   |                              |
|       | Designation                  | IQAC Coordinator                                                                                                |                              |
| 3     | Telephone No.<br>Mobile No.  | NA<br>9434946924                                                                                                |                              |
|       | Fax No.<br>e-mail ID         | svctkp@gmail.com                                                                                                |                              |
|       | No. of shift (Morning & Day) | 7am, TO 5pm                                                                                                     |                              |
|       | No. of Employees (Approx)    | 105                                                                                                             |                              |
| 4     | Electricity Consumption      | Imported (Purchased)<br>4839                                                                                    |                              |
| 1     | a in Consumption             | Fuel                                                                                                            | Electricity                  |
| 5     | Specific Energy Consumption  | 3762/-                                                                                                          | Rs. 41,297/- (Per<br>(month) |
| 6     | LPD                          | 9,900/-                                                                                                         |                              |
| 7     | EPI                          | 0.24                                                                                                            |                              |

-1

## 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                | 16.57       |
| B | Maximum demand                     | 16.57       |
| С | Total Energy units consumed / year | 58077       |
| D | Avg. Power Factor(P.F.)            | 0.97        |
| E | Avg. Energy bills(Rs/month)        | Rs.41,297/- |

# c) Detailed list of Electric Motors operating in the college

| S.NO. | NAME OF THE PLANT                         | RATING OF<br>MOTOR (KW) | NO, OF MOTORS |
|-------|-------------------------------------------|-------------------------|---------------|
| 1     | Suri Vidyasagar College,<br>Suri, Birbhum | 3.34                    | 4 nos.        |

## d) Connected Load

х

-

•

-

-

-

•

-

|    | EQUIPMENT                                                   | TOTAL<br>NUMBE<br>RS                                                                                                          | LOAD IN<br>KW<br>(TOTAL) |
|----|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| A  | Motors : Greater than 10kW                                  | NIL                                                                                                                           | NIL                      |
|    | : Less than 10 kW                                           | 4Nos.                                                                                                                         | 3.34 KW                  |
| в  | AC & Ventilation with TR capacity                           |                                                                                                                               |                          |
| a) | Others (Package ACs/ Split<br>ACs / Windows ACs) with<br>TR | Room AC of<br>type –<br>50.99                                                                                                 | Split/Window             |
| с  | Total Process Load (in kW)                                  | 54.33 KW                                                                                                                      |                          |
| D  | Total Lighting Load (in kW) &<br>Luminaries<br>details      | No's of lighting luminarie<br>(LED+T/L+ (including fan<br>Tube Light, Led Light,<br>etc.= 27.06 KW<br>Electric Fan - 46.38 KW |                          |
| -  | Total Load (in kW)                                          | 127.77 KW                                                                                                                     |                          |

## A. Lux Measurements :

.

•

•

•

•

| Lno. Room |                         | LUX level R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
|-----------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|           |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
| £         | Arabinda Bhavan         | 300,299,301,295,296                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|           | Ground Floor            | 300,299,301,295,296                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|           | 1 <sup>st</sup> floor   | 301,301,302,305,303                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|           | 2 <sup>#d</sup> floor   | 297,300,302,312,303                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|           | Rabindra Bhavan         | 200 201 200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
|           | Ground Floor            | 305,304,303,294,299                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|           | 1 <sup>st</sup> floor   | 304,302,290,302,306                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| i         | Auditorium (New hall)   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
|           | Ground Floor            | 295,303,304,300,304                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| 4         | Gandhi Bhavan           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
|           | Ground Floor            | 301,304,305,298,296                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|           | 1 <sup>n</sup> floor    | 306,304,300,299,306                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| 5         | Vivekananda Bhavan      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
| 5         | Ground Floor            | 303,304,306,310,299                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|           | 1 <sup>st</sup> floor   | 298,286,301,305,304                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| 1         | Humanities Building     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
| 6         | Ground Floor            | 302,304,312,309,300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|           | 1 <sup>st</sup> floor   | 298,296,304,308,299                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| -         | Administrative Building |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
| 7         | Ground Floor            | 301,310,314,298,296                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|           | L <sup>st</sup> floor   | 310,308,314,298,306                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|           | Rabindra Chatravas      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
| 8         | Ground Floor            | 298,296,300,297,301                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| -         | 1" floor                | 301,298,300,299,302                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|           | Mrinalini Chatriniwas   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
| 9         | Ground Floor            | 297,296,298,294,300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|           | 1 <sup>º</sup> floor    | 302,301,299,297,300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|           | Micro Biology           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
| 10        | Ground Floor            | 305,306,304,301,304                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| -         | L <sup>®</sup> floor    | 298,303,302,300,298                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|           | NSOU Building           | - A started and the started an |  |
| 11        | Ground Floor            | 312,305,306,300,301                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| 1         | 1 <sup>n</sup> floor    | 305,308,304,306,308                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| -         | RUSA                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
| 12        | Ground Floor            | 299,300,304,306,307                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|           | I" floor                | 300,302,304,309,303                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |

#### **Illumination Level Comparison**

-

-

•

-

-

| Area                    | Average Lighting Level<br>(LUX) | NBC Recommended |
|-------------------------|---------------------------------|-----------------|
| Arabinda Bhayan         | 301                             | 300-500         |
| Rabindra Bhavan         | 300                             | 300             |
| Auditorium (New hall)   | 301                             | 300             |
| Gandhi Bhavan           | 301                             | 300             |
| Vivekananda Bhavan      | 301                             | 300             |
| Humanities Building     | 303                             | 300             |
| Administrative Building | 305                             | 300             |
| Rabindra Chatravas      | 299                             | 300             |
| Mrinalini Chatriniwas   | 298                             | 300             |
| Micro Biology           | 302                             | 300             |
| NSOU Building           | 305                             | 300             |
| RUSA                    | 303                             | 300             |

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

3

3

3

3

3

-

2

The institute has taken an important step for reduction in pollution level by installation of solar panel and photo voltaic cell for generating electricity.

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. 8 : Solar System

#### 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.

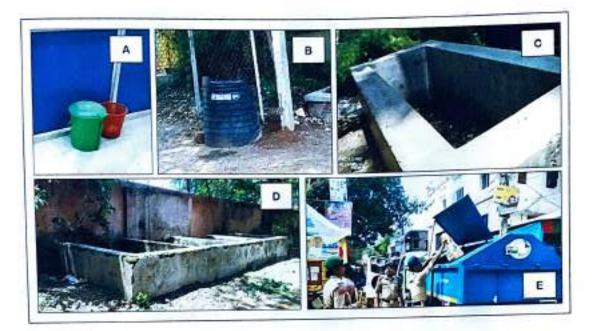
#### 10.1 Solid Waste

9

9

Suri Vidyasagar College has set up separate bins to ensure proper segregation and collection of the biodegradable, non-biodegradable and hazarders 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, which and brown papers, batteries, print cartridges, cardboard, furniture, damage pen, carbon papers etc are either sold to vendors for recycling or despatch via municipality disposal van in regular basis. The biodegradable waste such as humas, rest portion of vegetables etc. which are used in college canteen, Staff quarters and Boys' and Girls' hostels are used for preparing bio fertilizers.

Vermi compost units are observed near New Hall for fertilizers also. College has developed few good practices, such as single sided used papers are reused for writing and printing in all the departments to minimize the usage of papers. Very less plastic waste (0.1Kg/day) is generated by some departments, office, garden etc and campus is declared as Plastic Free zone. Metal waste and wooden waste is stored and sent to authorize scrap agents for further processing. Glass bottles are reused in the laboratories.



# Fig. 9 : Waste Management in college campus

(A) Dustbin for solid and liquid waste, (B) Large dustbin for solid non-biodegradable waste product;
(C) Reservoir for Solid bio-degradable waste product; (D) Vermi compost units (E) Disposed of waste product storage bags carrying van from Suri municipality by NCC.

3

#### 10.2 Liquid Waste

2 2 2

The source of wastewater is Domestic Waste Water i.e., Sewage water. The Sewage water mainly comes from laboratory of different departments, toilets of college, hostel, kitchen and canteen. Those waters are used for gardening purpose.

#### 10.3 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.

E-Waste is accumulated in a separate room, stock of such waste as on date is quite substantial.

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.

44

The College should take steps for disposal through the approved vendors.

# BIODIVERSITY STATUS OF THE COLLEGE CAMPUS

## 11.1 Introduction

5

5

3

5

3

3

9

4

1

1

1

2

Suri Vidyasagar College campus is very rich in the term of 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 biodiversity of an area so that the local people can be aware of the richness of biodiversity 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:

- Documentation of the floral diversity of the area: its trees, herbs, shrubs, climbers and aquatic vegetations.
- Documentation of the major faunal groups like mammals, reptiles, amphibians, birds and among the insects, butterflies and dragonflies.

45

Documentation of the specific interdependence of floral and faunal life.

### Survey Area

The green area of Suri Vidyasagar College covers approximately 3.96 acres out of 9.18 acres, which is about 43.15 percent of the total area, and is strategically distributed across different sections of the campus. The green spaces include gardens, courtyards, an open field, and a play ground, providing ample opportunities for relaxation, outdoor activities, and study in gina natural setting. **Location Map** 

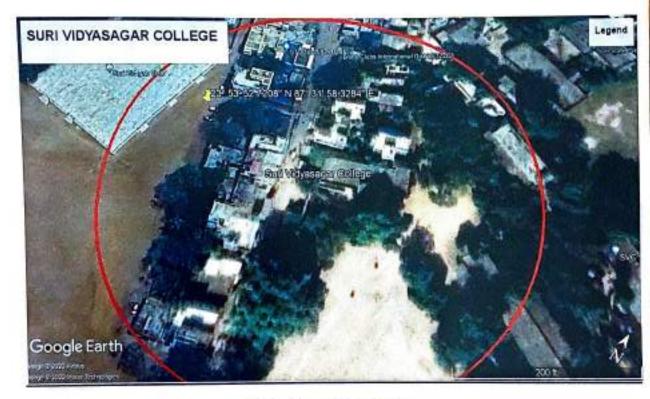


Fig. 10 : Location map

## 11.3 Method of Study

ŷ

3

3

3

3

3

9

3

3

9

9

.

,

2

2

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.

2

## 11.4 Plant diversity in the College Campus

Suri Vidyasagar College premises having about 39.54 acres of land have unique plant diversities. These include flowering plants, leafy trees, medicinal herbs and innumerable wild bushes.

These plants are listed and depicted as following:

| কুক্তুব্রা<br>Defonite regio (Bojer en Hook.) Raf.<br>Family: Pabacene, Clade: Rosids | वान्धवलाहि<br>Causia Asula L.<br>Family: Fabscene, Clade, Resida                                 | मिनाउँगीती<br>Seeme anomena (Lam.)<br>H.S.Bawing Barneby<br>Family Fabaoese, Clade Rossia              |
|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| (মহমনি<br>Swevenia makagoni(L) Jacq<br>Pamily Melinome: Clade: Rosids                 | কলকচূড়া<br>Poliopharampirrocurpass(DC.) Backer<br>ex K.Heyne<br>Family: Faboreac, Clade: Rosids | बकूल<br>Afenatoperingi 1.<br>Family-Sapetoceae: Clade Asterids                                         |
| শিশু<br>Dathergie streeeRook ex DC.<br>Family Fabecene, Clade: Rooids                 | भितिम<br>Abbaro lebbecit(L. ) Benth<br>Family: Fabaceae, Clada: Rosids                           | (544))<br>Janoanlangfalaan (Sann ) H. Xue J.<br>R.M.K. Saunders<br>Family: Annonacene, Clade Magnolids |
| बाउि<br>Caseorien egeisettfolio L<br>Family Casearingcere; Clade Rosids               | থাতিম<br>Abroniaschedenis (L.) R.Br<br>Family: Apocynaceae, Clade, Asterids                      | हिंदम<br>Azadinachta Indica A. Just<br>Family: Meliaceae: Clade: Rosida                                |
| ইউক্যালিপটাস<br>Exceptplas resuccess: Sm.<br>Family: Myracesc, Clade: Resids          | (সগুন<br>Tectore grandel, f<br>Family: Lamiscene: Clade Asterids                                 | बंधे<br>Fiew benghalewar L<br>Family: Maracose, Clade: Rosida                                          |
| 和愛ら<br>Fiene strongAlton<br>Family Meraceon Clude Roods                               | জান<br>Manggliera institue L<br>Family: Anacardineene: Clade: Rusids                             | ন্তাল<br>Barasiat flabellijer L.<br>Family: Arecaccae, Clude: Commelinid                               |
| 비(대(제)<br>GitecteRempione(Jacq.) Kusth<br>Family: Fabaceae, Clade: Roads              | 동작되었다<br>Tecomo alanu (L.) Juna. es Runth<br>Family. Bignoniacene, Clade: Astenda                | नाप्रसिद्धम<br>CouroapilitysistematisAubi<br>Family Lecythidaccae, Clade Asterida<br>Ach               |
| (বল<br>degle warnelus (L.) Carres<br>Family: Rutacese, Clade: Rosids                  | काई-बागाम<br>Terminatia catappe I.<br>Family Combretacene, Clude: Reside                         | MavindacansurBach-Mam<br>Family: Robiaceae; Clade: Astends                                             |
| Kurchi<br>HolorrianapabrazzasWall es G.Den<br>Famile: Apocynaceae, Clade: Astendo     |                                                                                                  |                                                                                                        |

# List of the Major Plants of the Garden

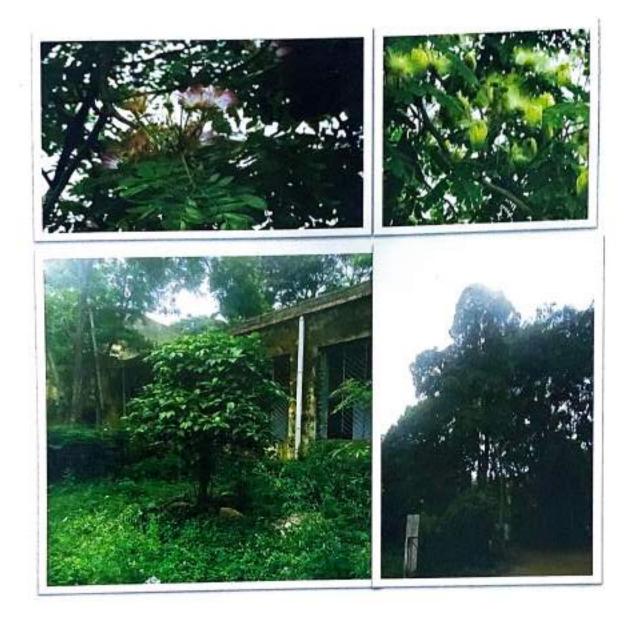


Fig. 11 : Major plants in the campus area

## 11.5 Medicinal Plants in the Campus:

,

•

-

-

-

A number of plants with medicinal properties are growing in the campus, specially in the medicinal plant garden.

| L.    | Common Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Scientific name                                          | Uses                                                                                                                                             |  |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 0.    | Basak                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Justicia adhatoda                                        | Couth, colds, asthma, bronchodilator                                                                                                             |  |
|       | Apang                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Achyranthes aspera Linn.                                 | Anti inflammatory and uterine stimulate accord                                                                                                   |  |
| 3     | Kalmech                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Andrographis paniculata<br>(Burm.f.)                     | Fever, dysentery, dyspepsia, improves liver<br>function, Leaves – in case of irregular stool,<br>losss of appetite; roots – given to children to |  |
| 4     | Harjora                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Cissus quadrangularis Linn.<br>Syn. Vilis quadrangularis | Leaves – in bowel complaints, stem to cure<br>scurvy, irregular menstruation, asthma, sap<br>applied externally on forehead to cure one-         |  |
| 5     | Amlaki                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Emblica officeinalis Gaertn                              | Fruits - treat vomiting, leprosy, piles, anaemia,                                                                                                |  |
| 6     | Ramtulsi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Ocimum gratissimum Linn.                                 | Leaves - Decoction of the leat applied to treat<br>septic wounds, Seeds - soaked in water and<br>taken very cooling and refreshing drink.        |  |
| 7     | Jaba                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Hibiscus /osasinens/s Linn.                              | Flowers – in black colour of nair, remare<br>disease; leaves – soothing, used in growth of<br>back Roots – in cold                               |  |
| 8     | Telakucha                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Coccinia grandis (Linn.)<br>Voigt                        | Roots – in case of vomiting, burning sensation<br>of hands and feet; Leaves – in cough and skin<br>disease.                                      |  |
| 2.00  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Wythania somnifera                                       | Root, Leaf, Fruits and Seed                                                                                                                      |  |
| 9     | Arshagandha                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Calotropis agigantea                                     | Bark, Root, Leaf, Latex, Flower                                                                                                                  |  |
| 10    | ALC: NOT THE REAL PROPERTY OF  | Eupatonium triplinerve                                   | Whole Plants                                                                                                                                     |  |
| 1     | and the second s | Ocimum sanctum                                           | Leaf                                                                                                                                             |  |
| 1     | 2 Tulsi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Murraya koenigi                                          | Root, Leaf, Fruit                                                                                                                                |  |
| 1     | 3 Kari pata                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Barleria lupulina                                        | Leaf                                                                                                                                             |  |
| 1     | 4 Bisallakaroni                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Hygrophila schulli                                       | Whole plant                                                                                                                                      |  |
| 1     | 5 Kulephara                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Gymnema sylvestre                                        | Root, Leaf, Fruit                                                                                                                                |  |
|       | 6 Gurmar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Aloe vera                                                | Leaf                                                                                                                                             |  |
|       | 7 Grikumari                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Cantella asiatica                                        | Leaf                                                                                                                                             |  |
| 1     | 8 Thankuni                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Catharanthus roseus                                      | Whole Plants                                                                                                                                     |  |
| 1     | 9 Nayantara                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Azadirachta indica                                       | Bark, Leaf, Yound Stem, Unripedfuit, Seed Oi                                                                                                     |  |
| 1     | 0 Neem                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Azadiracrita indica<br>Adhatoda vasika                   | Leafd, Flower, Bark, Root                                                                                                                        |  |
| 1     | 1 Basak                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Gendarussa Vulgaris                                      | Leaf                                                                                                                                             |  |
|       | 22 Bisliakarani                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Aegle marmelos                                           | Root, Young Leaf, Flower, Ripe and Unriped                                                                                                       |  |
| -     | 23 Bel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | and subject of the                                       | Fruit                                                                                                                                            |  |
| -     | 24 Sarpagan Jha                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Raunollia serpentina                                     | Leaf                                                                                                                                             |  |
|       | 24 Sarpagan Jha<br>25 Sughni                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Marsilea minuta                                          | Whole Plant                                                                                                                                      |  |
| 1.000 | and the second se                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Nerium odorum                                            | Root, Leaf, Bardk, Stem                                                                                                                          |  |
|       | 26 Karabi<br>27 Black Tulsi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Ocimum tenuifiorum                                       | Whole Plant, Leaf, Seed                                                                                                                          |  |
| 12    | 28 Muthagrass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Cyperus rotundus                                         | Root                                                                                                                                             |  |



1. Heliotropium indicum

3

э

3

z



3. Gymnema sylvestre



5. Asystasia gangetica



MEDICINAL GARDEN



6. Hygrophila spinosa



2. Impatiens balsamina



4. Pergularia daemia



7. Anisomeles indica



8. Hyptis suaveolens



9. Leonotis nepetifolia



10. Leucas cephalotes



11. Martynia annua



12. Vitex negundo



13. Clerodendrum viscosum

3



14. Evolvulus alsinoides



15. Ipomoea pes-tigridis



16. Operculina turpethum



17. Euphorbia tirucalli



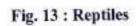
18. Ricinus communis

Fig. 12 : Medicinal plants



| SI, No. | Common Name              | Scientific Name          | Bengali Name |
|---------|--------------------------|--------------------------|--------------|
| 1       | Checkered Keelback       | Xenochrophis<br>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      |
| 5<br>6  | Common House Gecko/Gekko | Hemidactylus<br>frenotus | Tiktiki      |





# 11.7 Checklist of Birds:

A total of 63 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 i<br>Common Name | Scientific Name           |
|--------|-------------------------------------------------|---------------------------|
| I. No. | Common Name                                     | Phalacrocarax fuscicollis |
| 1      | Indian cormorant                                | Photocrocordx Jusce       |
| 2      | Little cormorant                                | Microcarbo niger          |
| 3      | Little Egret                                    | Egretta garzetta          |
| 4      | Cattle Egret                                    | Bubulcus Ibis             |
| 5      | Black Kite                                      | Milvus migrans            |
| 6      | Black shouldered kite                           | Elanus axillaris          |
| 7      | Common kestrel                                  | Falco tinnunculus         |
| 8      | Shikra                                          | Accipiter badius          |
| 9      | White breasted water hen                        | Amaurornis phoenicurus    |
| 10     | Pond Heron                                      | Ardeola grayli            |
| 11     | Common sandpiper                                | Actitis hypoleucos        |
| 12     | Yellow Footed Green pigeon                      | Treron phoenicoptera      |
| 13     | Rock pigeon                                     | Columba livia             |
| 14     | Spotted dove                                    | Spilopella chinesis       |
| 15     | Ring necked dove                                | Streptopelia capicola     |
| 16     | Alexandrian parakeet                            | Psittacula eupatria       |
| 17     | Common Cuckop                                   | Cuculus canorus           |
| 18     |                                                 | Athene broma              |
| 10     | Spotted Owlet<br>White throated Kingfisher      | Halcyon smymensis         |
| 20     | Small blue Kingfisher                           | Alcedo atthis             |
| 20     | Stork billed Kingfisher                         | Pelargopsis copensis      |
| 22     |                                                 | Ceryle rudis              |
| 1000   | Pied Kingfisher<br>Common Hoopoe                | Upupa epops               |
| 23     | Chestnut headed Bee-eater                       | Merops leschenaulti       |
| 24     |                                                 | Merops orientalis         |
| 25     | Green Bee-eater                                 | Dinoplum benghalense      |
| 26     | Black-rumped Flameback                          | Yungipicus nanus          |
| 27     | Brown-capped Pygmy Woodpecker                   | Megalaima haemacephalo    |
| 28     | Coppersmith Barbet                              | Megolaimo asiatica        |
| 29     | Blue throated Barbet                            |                           |

| SI. No.         | Common Name                 | Scientific Name         |  |
|-----------------|-----------------------------|-------------------------|--|
| 30              | Lineated Barbet             | Megalaima lineata       |  |
| 31              | Brown-capped Woodpecker     | Dendrocopos nanus       |  |
| 32 Brown Shrike |                             | Lanius cristatus        |  |
| 33              |                             | Lanius schach           |  |
|                 | Long tailed Shrike          | Passer domesticus       |  |
| 34              | House Sparrow               | Oriolus xanthornus      |  |
| 35              | Black hooded Oriole         | Orious oriolus          |  |
| 36              | Golden Oriole               | Dicrurus mocrocercus    |  |
| 37              | Black Drongo                | Dicrurus aeneus         |  |
| 38              | Bronze winged Drongo        | Acridotheres tristis    |  |
| 39              | Common Myna                 | Gracupica conta         |  |
| 40              | Asian pied Starling         | Sturnia malabarica      |  |
| 41              | Chestnut tailed Starling    | Acridotheres fuscus     |  |
| 42              | Jungle Myna                 | Dendrocitta vagabunda   |  |
| 43              | Rufous Treepie              | Corvus brachyrhynchos   |  |
| 44              |                             | Pycnonotus cafer        |  |
| 45              | 1100                        | Pycnonotus jocosus      |  |
| 46              | 114 8                       | Prinia inornato         |  |
| 47              | Common Prinia               | Prinia socialis         |  |
| 48              | 3 Ashy Prinia               | Turdoides caudata       |  |
| 4               |                             | Muscicopo muttui        |  |
| 5               | 0 Brown breasted Flycatcher | Ficedula albicilla      |  |
| 5               | 1 Taiga Flycatcher          | Orthotomus sutorius     |  |
| 5               | 2 Tailorbird                | Luscinia svecica        |  |
| 5               | 3 Bluethroat                | Saxicola caprata        |  |
| 5               | 64 Pied Bushchat            | Copsychus saularis      |  |
| Ę               | 55 Oriental Magpie robin    | Dicoeum erythrorhynchos |  |
| 1               | 56 Pale billed Flowerpecker | Motocilla alba          |  |
|                 | 57 White Wagtail            | Motacilla alba          |  |
|                 | 58 Pied Wagtail             | Motacilla flava         |  |
|                 | 59 Yellow Wagtail           | Motacilla citreola      |  |
| 1               | 60 Citrine Wagtail          | Leptocoma zeylonica     |  |
|                 | 61 Purple rumped Sunbird    | Ionchura punctulata     |  |
| 1               | 62 Silver billed Munia      | Rhipidura albicollis.   |  |
| 1.0             | 63 White throated Fantail   | 1) T                    |  |

-

,

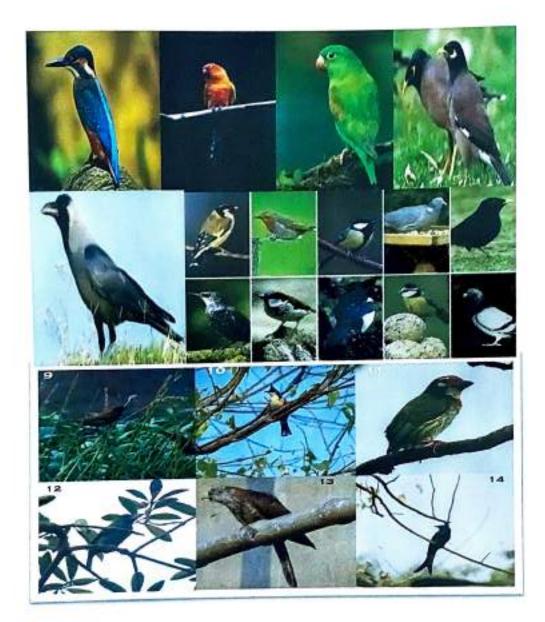


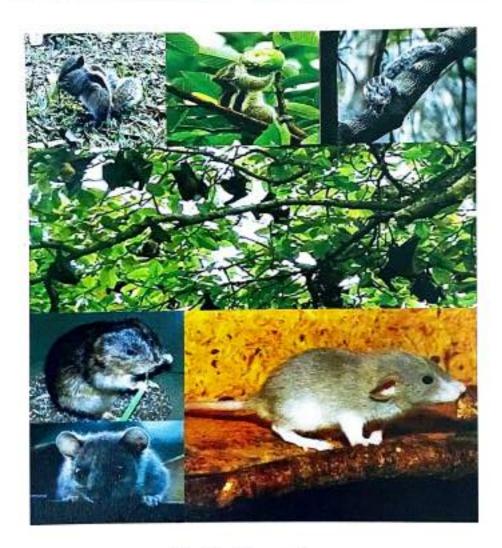
Fig. 14 : Local Birds

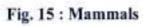


J

J

| SI. No. | Common name             | Scientific name          | Bengali name |
|---------|-------------------------|--------------------------|--------------|
| 1       | Indian palm<br>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  |





| SI.<br>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<br>punctatum     |
| 4.         | Oakleaf Fern                  | Oakleat Fern                    | Drynaria quercifolia        |
| 4.<br>5.   | Dog flower, Snadragon         | Dog flower, Snapdragon          | Antirrhinum majus           |
| 6.         | Garden stock,<br>Common stock | Garden stock, Common stock      | Matthiola incana            |
| 7.         | Gazania                       | Gazania                         | Gazania sp.                 |
| 8.         | Gladiolus                     | Gladiolus                       | Gladiolus sp.               |
| 9.         | Himsagar                      | Flaming katy, Florist kalanchoe | Kalanchoe<br>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.                 |

# 11.09 Checklist of Ferns and Seasonal Flowers

3

-



Fig. 16 : Flowers of the college premises

#### CHAPTER - 12

#### GREEN INITIATIVES

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

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



Tree Plantation by respected Principal sir Dr. Tapan Kumar Parichha and Army Officer on the occasion of World Environment Day celebration, organized by Department of NCC, Suri Vidyasagar College

#### Fig. 17 : Plantation programme

## 12.2 Green computing practice

0000000

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<sub>2</sub>. 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. Suri Vidyasagar 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. Suri Vidyasagar Colleges hold 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.

# 13.1 Preparation of Action Plan

ÿ

9

3

3

3

3

3

3

3

9

9

•

•

9

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 on the basis of the audit findings.

## 13.3 Environmental Education

3

3

3

3

3

3

3

3

3

3

9

-

.

•

,

з

A

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.

#### 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

3

3

- 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.
- Adopt the proposed Environmentally Responsible Purchasing Policy, and work towards creating and implementing strategy to reduce the environmental impact of its purchasing decisions.
- Increase reduce, reuse, and recycle education on campus.

#### 14.2 Recommendations:

- a) Declare the campus plastic free and implement it thoroughly.
- b) Avoid plastic/thermocol plates and cups in the college level or department level functions.
- c) Noise level monitoring shall be done as per the guideline of "Noise Pollution (Regulation and Control) Rules '2000'.
- d) The Biodiversity is to be maintained whole considering the plantation in future.
- Awarness among students and staff about green environment shall be done use tools like display boards.
- f) The surroundings of the College should be keep clean.
- g) No such processes or activities were observed at Suri Vidyasagar College which can deteriorate the environmental quality.

#### Fire Extinguisher

- Fire extinguisher are required to be kept within the College campus area.
- 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 clearly marked.

#### Medicinal Garden

Medicinal Garden should be keep clean. Systematic plantation program should be drawn and implemented.

> Sonar Phinat Environment & Ecology PVI. Lid Parenal Sarkan

> > Director

#### Energy Consumption

- Installation of solar panels in the open space around the building may be considered.
- Sensor light may be fixed in the toilets for conservation of energy.
- Replace incandescent and CFL lamps with LED Light
- Replace LCD computer monitors with LED monitors.
- Cleaning of tube lights/bulbs should be do neon a regular basis to remove dust.

#### **Drinking Water**

U

1

.

.

.....

.

3

-

- Adequate number of taps for safe drinking water should be placed at strategic locations. Taps near the some room was found to non functional, should be replaced.
- Drinking water, Noise, Ambient Air quality monitoring is to be conducted through approved vendor of the West Bengal Pollutin Control Board (WBPCB).

#### Ponds

- Concrete barrier should be arranged around the pond.
- The ponds should be cleaned every year.

#### Solid Waste

- Vermy compost is available near by Girls hostel, it can be thought of at a separate place.
- More dustbin should be arrange on every floor of the College

Sonar Bharat Environment & Ecology Pvt. Ltd. Parimal Sarpar

Director

#### Liquid Waste

3

3

3

3

.

3

.

3

9

9

2

- A waste water treatment plant should be installed to recycle and reuse the waste water generated from domestic use.
- Use re usable resources and containers and avoid un necessary packaging wherever possible.
- College committee should be care that no contaminated water or chemical get into the soil.

#### E-Waste

- A separate enclosure needs to be made for storage of scrap and E-waste materials.
- As per the guidelines of Pollution Control Board, (P.C.B.) E-Waste is to be disposed of through approved vendors of the P.C.B.
- The College should take steps for disposal through the approved vendors.

#### Rain Water Harvesting System

- Plan to install rain water harvesting system on rooftop of every building of this college campus and recharging more amount of ground water level.
- > Overflow must be monitored and controlled, and supervision exercises should be scheduled on a regular basis.

Sonar Pharat Environment & Ecology Pvt. Ltd. Parienal Saman

Director

# ACKNOWLEDGEMENT

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

Our special word thanks are extended to:

3

3

3

3

- 1. Dr. Tapan Kumar Parichha Principal
- 2. Dr. Sujoy Das Assistant Professor of Mathematics & Coordinator, IQAC
- 3. Dr. Anirban Paul Assistant Professor of Botany, Convenor, Green Audit Team
- Dr. Soumya Ranjan Bhattacharyya, Associate Professor, Dept. of Physics.
  - 5. Dr. Hemanta Saha Assistant Professor of Botany & A.N.O., NCC
  - Dr. Tanmoy Mandal Assistant Professor of Plant Protection & P.O., NSS
  - Sri Pankaj Roy Assistant Professor of Chemistry
  - Sri Shamim Alam Assistant Professor of Botany
  - 9. Sri Ranajit Ghosh State Aided College Teacher of Geography
  - 10. Sri Subhas Chandra Mondal Accountant

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

Sonar Bharat Environment & Ecology Pvt. Ltd. Parimal Sance

Director



J

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

# Sonar Bharat Environment & Ecology Pvt. Ltd.

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 applica | able : 8.3             | 1st Surveillance due : 13,10,2023 |
| Certificate number      | IND/QMS/NAB-C3313/3200 | 2nd Surveillance due : 13.10.2024 |
| Attachment(s)           | : None                 |                                   |
|                         |                        |                                   |

**Arasim batab** Director

69

Gertificato of compliance has an expiry period of 3 years from the current certification cycle start date but shall be considered as explicit. If the surveillance audit programme indicated in this certificate of compliance is not implemented to maintain confidence that the certified management system continues to full'i regularements unless otherwise supported by a letter of continued compliance issued by the registered office of integrated Quality Certification Pvt. Lad. Certificate of compliance shall be updated in website/registry as supported and/or withdeave if the surveiliance programme prior to the due date indicated show is not ecoyolisited and implemented. Written information on any significant organizational changes with, implet on the certificate of compliance shall be communicated to integrated Quality Certification Pvt. Ltd prior to the planned sufficience.

Corporate Office, Hammer City, CC U/45, Sec K 02, Next to CMD1, HMT Hand, Vestorentheir Post, Borgshaw - 500022, Infla Tel. (2010) 0172752, 41270752, 41270752, 4126047, Envel representation-policitations. Velocity: record specifications CIN : UP1496A 2010/PC107055) Prese with twee application on the control of the contr







## SONAR BHARAT ENVIRONMENT & ECOLOGY (P) LIMITED ( ISO 9001:2015 CERTIFIED COMPANY )

ISO Certificate No. IND/QMS/NAB-C3313/3200 Registered Office: Flat No. 1A N368, Baishnabghata Patuli, Kolkata -700 094 Head Office: 35 Chitaranjan Avanue, 3<sup>rd</sup> Floor Kolkata - 700012 Phone : (91-33) 2211 - 3034/0397, 033 4003 1179, E-mail : <u>sonarbharat2010@gmail.com</u> sonarbharat2017@gmail.com

Date: 07.08.2023

#### GREEN AUDIT CERTIFICATE

- Name of Work Project
- Green Audit of Suri Vidyasagar College
   College Para, Suri, Dist. Birbhum, West Bengal 731 101.
- Duration of Audit
- : 13.07.2023 to 14.07.2023
- Period of Audit : 2022-2023
- Sonar Bharat Environment & Ecology Pvt. Ltd. has conducted Green Audit in the campus of Suri Vidyasagar College, College Para, Suri, Dist. Birbhum, West Bengal – 731 101..
- With the cooperation of faculty members and other staff audit has been successfully completed.

Barral

Subrata Desarkar (Auditor)



Parimal Sarkan

Parimal Sarkar (Director)







SONAR BHARAT ENVIRONMENT & ECOLOGY (P) LIMITED ( 180 9001:2015 CERTIFIED COMPANY ) ISO Certificate No. IND/QMS/NAB-C3313/3200

Registered Office: Flat No. 1A N368, Balshnabghata Patuli, Kolkata -700 094 Hee/Office: 35 Ohterejin Avenu, 3<sup>e</sup> Rocr Kalata -700/12 Phone : (91-33) 2211 - 3034/0397, 033 4003 1179, E-mail : <u>sonarbharat2010@gmail.com</u> sonarbharat2017@gmail.com

Date: 04.08.2023

#### ENERGY AUDIT CERTIFICATE

Name of Work Project

- Energy Audit of Suri Vidyasagar College College Para, Suri, Dist. Birbhum, West Bengal – 731 101.
- Duration of Audit
- : 17.07.2023 to 18.07.2023
- Period of Audit : 2022-2023
- Sonar Bharat Environment & Ecology Pvt. Ltd. has conducted Energy Audit in the campus of Suri Vidyasagar College, College Para, Suri, Dist. Birbhum, West Bengal - 731 101.
- With the cooperation of faculty members and other staff audit has been successfully completed.

Sursu Majumdar

Suvra Majumda. BEE-EA-5723, AEA-221 Chartered Engineer (India) – Electrical Engineering Div.

Sonar Phonal Environment & Ecology Pvil. Ltd. Parimal Sarkar

> Director Parimal Sarkar (Director)



J

3

J

3

)

)

)

5





#### SONAR BHARAT ENVIRONMENT & ECOLOGY (P) LIMITED ( ISO 9001:2015 CERTIFIED COMPANY )

ISO Certificate No. IND/QMS/NAB-C3313/3200 Registered Office: Flat No. 1A N368, Baishnabghata Patuli, Kolkata -700 094 HeadOffice: 35 Ohteranjen Avenue, 3" Roor Kokata-700012 Phone : (91-33) 2211 - 3034/0397, 033 4003 1179, E-mail : <u>sonarbharat2010@cmail.com</u> sonarbharat2017@gmail.com

Date: 22.07.2023

#### ENVIRONMENTAL MONITORING CERTIFICATE

Name of Work Project

 Environmental Monitoring of Suri Vidyasagar College College Para, Suri, Dist. Birbhum, West Bengal – 731 101.

- Duration of Audit
- : 13.07.2023 to 14.07.2023 : 2022-2023
- Period of Audit : 2/
- Sonar Bharat Environment & Ecology Pvt. Ltd. has conducted Environmental Monitoring in the campus of Suri Vidyasagar College, College Para, Suri, Dist. Birbhum, West Bengal – 731 101.
- With the cooperation of faculty members and other staff audit has been successfully completed.

Banel

Subrata Desarkar (Auditor)



Parinel Sarkan

Parimal Sarkar (Director)

# THE END

J

U

J