



# PRASANTA CHANDRA MAHALANOBIS MAHAVIDYALAYA



**GREEN AUDIT REPORT 2021-22**

## **GREEN AUDIT-2020-21**

### **1.1 INTRODUCTION**

Green or Environmental Audit is a process of systematic identification, quantification, recording, reporting analysis and documentation of components of environmental diversity of college. Green Auditing is a systematic assessment of day-to-day activity with reference to the utilization of resources and waste management. It aims to analyse environmental practices within and outside of the concerned place; leading to an eco-friendly atmosphere. It is a medium for a college to determine how and where they are using the most energy or water or other resources; the college can then consider how to implement changes and make savings. It can create health consciousness and promote environmental awareness, values and ethics. It also provides staff and students better understanding of Green impact on campus. On this background it becomes essential to adopt the system of the Green Campus for the institutes which will lead for sustainable development. The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory that all Higher Educational Institutions should submit an annual Green Audit Report. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through carbon footprint reduction measures.

### **1.2 NEED FOR GREEN AUDIT**

Green audit helps to keep a close contact with environment and human being. They are:

- To protect the environment and solve environmental problems.
- To find out methods for waste management.
- Suggests measures for future complications.
- Evaluate environmental standards.
- Helps in the sustainable development of the institution.

### **1.3 OBJECTIVES OF GREEN AUDIT**

The main aims and objectives of this green audit is to assess the environmental quality and the management strategies being implemented in Prasanta Chandra Mahalanobis Mahavidyalaya.

The specific objectives are:

1. To monitor the energy consumption pattern of the college

2. To quantify the liquid and solid waste generation and management plans in the campus.
3. To impart environment management plans to the college
4. Providing a database for corrective actions and future plans.
5. To assess whether extracurricular activities of the Institution support the collection, recovery, reuse and recycling of solid wastes.
6. To identify the gap areas and suggest recommendations to improve the Green Campus status of the College.

## **1.4 METHODOLOGY**

The methodology adopted to conduct the Green Audit of the Institution had the following components.

### **On site Visit**

Four day field visit was conducted by the Green Audit Team. The key focus of the visit was on assessing the status of the green cover of the Institution, their waste management practices and energy conservation strategies etc. The sample collection, preservation, and analysis were done in the scientific manner as prescribed by the standard procedures.

### **Focus Group Discussion**

The Focus Group discussions were held with the nature club, bird club, ECO-Club members, staff members and the management focusing various aspects of Green Audit. The discussion was focused on identifying the attitudes and awareness towards environmental issues at the institutional and local level.

### **Energy and waste management Survey**

With the help of teachers and students, the audit team has assessed the energy consumption pattern and waste generation, disposal and treatment facilities of the college. The monitoring was conducted with a detailed questionnaire survey method.

## **1.5 TARGET AREAS OF GREEN AUDITING**

Green audit forms part of a resource management process. Although they are individualevents, the real value of green audit is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time. Eco-campus

concept mainly focuses on the efficient use of energy and water; minimize waste generation or pollution and also economic efficiency.

All these indicators are assessed in the process of “Green Auditing of this educational institute”. Eco-campus focuses on the reduction of contribution to emissions, procure a cost effective and secure supply of energy, encourage and enhance energy use conservation, promotes personal action, reduce the institute’s energy and water consumption, reduce wastes to landfill, and integrate environmental considerations into all contracts and services considered to have significant environmental impacts. Target areas included in this green auditing are water, energy, waste and green campus.

### **Auditing for Water Management**

Water is a natural resource; all living organisms depend on water. While freely available in many natural environments, in human settlements potable (drinkable) water is less readily available. Water auditing is conducted for the evaluation of facilities of raw water intake and determining the facilities for water treatment and reuse.

### **Auditing for Energy Management**

Energy conservation is an important aspect of campus sustainability which is also linked with carbon foot print of the campus. Energy auditing deals with the conservation and methods to reduce its consumption related to environmental degradation. It is therefore essential that any environmentally responsible institution examine its energy use practices.

### **Auditing for Waste Management**

Human activities create waste, and it is the way these wastes are handled, stored, collected and disposed of, which can pose risks to the environment and to public health. Pollution from waste is aesthetically unpleasing and results in large amounts of litter in our communities which can cause health problems. Solid waste can be divided into three categories: bio-degradable, non-biodegradable and hazardous waste. Bio-degradable wastes include food wastes, canteen waste, wastes from toilets etc. Non-biodegradable wastes include what is usually thrown away in homes and schools such as plastic, tins and glass bottles etc. Hazardous waste is waste that is likely to be a threat to health or the environment like cleaning chemicals, acids and petrol. Unscientific management of these wastes such as dumping in pits or burning them may cause harmful discharge of contaminants into soil and water supplies, and produce green house gases contributing

to global climate change respectively. Special attention should be given to the handling and management of hazardous waste generated in the college. Bio-degradable waste can be effectively utilized for energy generation purposes through anaerobic digestion or can be converted to fertilizer by composting technology. Non-biodegradable waste can be utilized through recycling and reuse. Thus the minimization of solid waste is essential to a sustainable college. The auditor diagnoses the prevailing waste disposal policies and suggests the best way to combat the problems.

### **Auditing for Green Campus Management**

Trees play an important ecological role within the urban environment, as well as support improved public health and provide aesthetic benefits to cities. The amount of oxygen released by the trees of the campus is good for the people in the campus. So while you are busy studying and working on earning those good grades, all the trees in campus are real so working hard to make the air cleaner for you.

#### **GREEN AUDIT WORKING TEAM (2021-22)**

SL NO	NAME OF THE MEMBERS
1.	DR. PARTHA SARATHI DUTTA (TEACHER IN CHARGE)
2.	DR. ALPANA RAY (IQAC-COORDINATOR)
3.	MS. SUDESHNA CHOWDHURY
4.	MR. SUDIP ROY
5.	DR. GUDDI TIWARI
6.	MR. CHANDAN CHAKRABORTY (NTS)
7.	MR. RANJAN DUTTA (NTS)
8.	MR. ASHIM NANDI (NTS)

## **GREEN AUDIT REPORT**

### **Brief History of the College**

PRASANTA CHANDRA MAHALANOBIS MAHAVIDYALAYA, BARANAGAR (formerly Bonhooghly College of Commerce) was established in 1965 as an evening Commerce College affiliated to the University of Calcutta. At the beginning, the college started functioning in the premises of Brahmananda Keshab Chandra College as evening college to teach Commerce only. In 1999 the college shifted in its new present building and the working hours of our college changed from the evening to the day shift for better teaching-learning facilities.

Moreover, from the academic session 2003-04 the college introduced faculties in arts and science by opening Honours course in Geography, Sociology and Education. This situation called for changing the name of the college as it was no longer just a commerce college. So, to pay tribute to Prof. P. C. Mahalanobis, the great pioneer statistician and founder of Indian Statistical Institute, our college was renamed Prasanta Chandra Mahalanobis Mahavidyalaya. Gradually Honours courses were opened in Mathematics, Economics, Bengali, English, Philosophy and Food & Nutrition. Chemistry and Computer Science was also introduced as general subjects to offer the students a better combination. From the academic session 2017-18 college has introduced four subjects such as Physics, History, Political Science and Human Development as general papers. From 2018-19 Computer Science Honours courses was started. From the academic session 2019-20 Honours courses are introduced in Political Science, History and Human Development Now our college owns a four-storey two-block building and has become a multi-faculty degree college offering Honours courses of study in 13 subjects.

### **Location of the College**

The college stands nearly two kilometres away from Sinthee More, Baranagar. Baranagar Road Railway Station (Dunlop Bridge) is less than a kilometre away. Accessible by both road and rail, the college, located beside the beautiful Bonhooghly Lake, is a natural choice for students not only from Baranagar-Kamarhati locality but also from some parts of Howrah and Hooghly districts. P.C. Mahalanobis Mahavidyalaya is situated at 111/3, B.T.Road, Bonhooghly, Kolkata- 700 108, in an eco-friendly campus with a small, beautiful lake and encompassed by a wide variety of trees & plants offering a vibrant green and unpolluted environment.



Figure: Satellite Image of Prasanta Chandra Mahalanobis Mahavidyalaya

## Infrastructure

Total area of the college is 1 acre out of which constructed area stands on 2,448 sq. mtrs. Ours is a three storied building with two wings arranged with furnished classrooms, Administrative buildings, laboratories, Computer laboratory, digital class room, well-equipped library, office, multi-gym, Women’s hostel, canteen, students’ union room, separate common room for boys and girls. Our play ground is of medium size. In the eastern side of the building there is the cycle stand for the students and staff. Though the common rooms are inadequate in the context of increasing roll strength, arrangements for Table Tennis, Carom and Chess are there.

Types	Numbers
<b>Total Built up Area</b>	<b>1 acre</b>
<b>Number of Buildings</b>	<b>02</b>
<b>No of Departments</b>	<b>16</b>
<b>Class rooms</b>	<b>21</b>
<b>Laboratories (dry)</b>	<b>03</b>
<b>Laboratories (wet)</b>	<b>02</b>

<b>Seminar Halls</b>	<b>01</b>
<b>Virtual class Room</b>	<b>01</b>
<b>Women Hostel</b>	<b>01</b>
<b>Canteen</b>	<b>01</b>
<b>Boys Common room</b>	<b>01</b>
<b>Girls Common Romm</b>	<b>01</b>
<b>Gymnassium</b>	<b>01</b>

## Surve

### y forms 1. Watermanagement

SLNO	PARAMETERS	Response	Remarks
1	Source of water	Municipality	
2	No of motors used	2	
3	Number of water tanks	3	
4	Capacity of tank	14000 litres	
5	Quantity of water pumped everyday	24,000 litres per day	
6	Any water wastage/why?	Nil	
7	Water usage for gardening	Yes , 650 litre per day	
8	No of water coolers	1	
9	Rain water harvest available?	Not yet	
10	No of units and amount of water harvested	Nil	
11	Any leaky taps	Na	
12	Amount of water lost per day	Nil	
13	Any water management plan used?	Nil	
14	Any water saving techniques followed?	Nil	



## 2. Energy audit

Room No./name/Floor	Electrical device/items	Number	Power (watt)	Power consumption overall (units)	usagetime(hr/day)
Ground floor	Tubelight	74	3080	93.66	10.00 am – 5.00 pm
	Fan	32	2560		
	Air conditioner	2	4000		
	LED	19	380		
	Wall fan	17	1360		
	Computer	10	2000		
1 <sup>st</sup> floor	Tubelight	51	2040	107.94	10.00 am – 5.00 pm
	Fan	41	3280		
	LED	29	667		
	Wall fan	8	640		
	Computer	44	8800		
2 <sup>nd</sup> floor	Tubelight	47	1880	35	10.00 am – 5.00 pm
	Fan	40	3200		
3 <sup>rd</sup> floor	Tubelight	63	2520	56	10.00 am – 5.00 pm
	Fan	49	3920		
	Stand and exhaust	3	240		
	Computer	8	1600		
Ladies Hostel	Tubelight	33	924	23	5.00 pm – 10.30 am
	Fan	30	2400		
Annex Building	Tubelight (LED)	84	1680	28	10.00 am – 5.00 pm
	Fan	29	2320		
Solar power					

Item: Bulbs (CFL, incandescent, LED); A/c, fan, computer, instruments

### 3. Wastemanagement

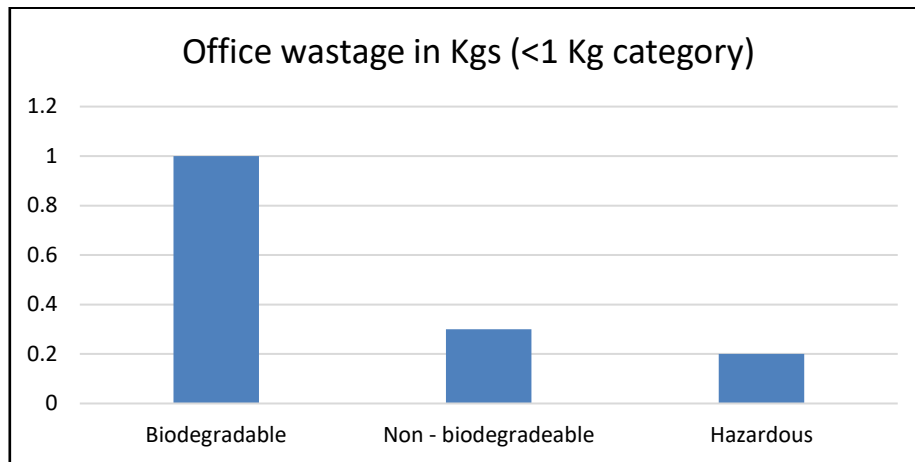
Approximate quantity of waste generated per day (in kg)

<b>Office</b>				
	Biodegradable	Non - biodegradable	Hazardous	Others
<1Kg	1 kg.*	300 grams**	200 grams***	

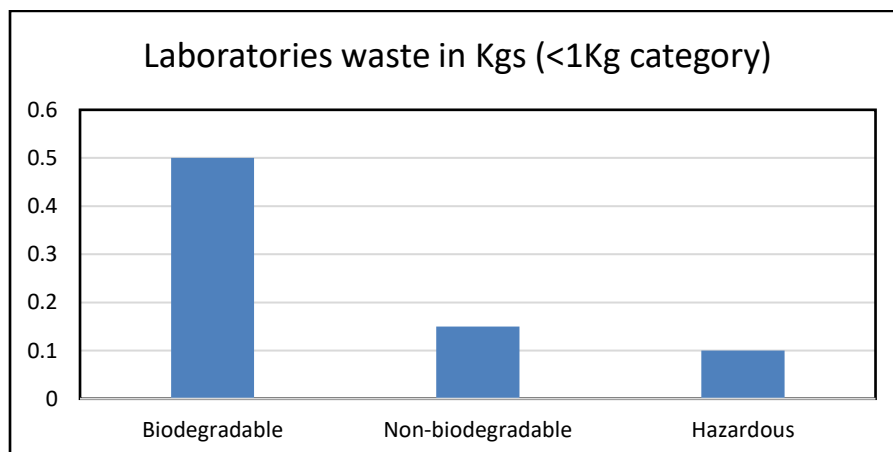
[ note : \*= from laboratory of food and nutrition and tiffins residue of teachers and students in case having fruit peels.

\*\*= glass utensils and plastics used for carrying of items or water, discarded after use.

\*\*\*= chemistry laboratory and phenyl used for cleaning of washrooms



<b>Laboratories</b>				
Approx	Biodegradable	Non - biodegradable	Hazardous	Others
<1Kg	500 grams	150 grams	100 grams	





Vegetables/ fruits residues are used for garden fertilizers

**Total strength of students, teachers, and Nonteaching staffs**

No of Students	1445
No of Teachers	51
No of Nonteaching staffs	18
No of Boy Students	657
No of Girl Students	568
Total	1445

**How the waste generated in the college is managed?**

		Remark
A)Composting/ Vermicomposting	Yes	From the department of food and nutrition
B)Recycling	No	
C)Reusing	No	
D)Other ways	No	

**Waste generated in the college?**

E-waste		Kgs (approax) per annum
Hazardous waste	Yes	2 kg
Solid waste	Yes	19 kg
Dry leaves	Yes	2.3 kg
Canteen waste	NA	-
Liquid waste	Yes	150 litres

Glass	Yes	1 Kg
Unused equipment	No	
Napkins		8 kg
Others(specify)	Na	

<b>Do you use recycled paper in college?</b>	No
<b>Any waste management method used?</b>	Yes ( composting of peels of fruits and vegetables; bones of chicken and fish; scales)

## **GREEN AUDIT REPORT**

### **Water Quality assessment**

Water samples from four different locations were collected and analyzed for its quality parameters. The samples includes two well water which are the main water source of the college campus and two tap water samples which is used for canteen and drinking water cum cooler systems. The samples were collected, preserved and transported to school of Environmental Sciences and analyzed for various physio-chemical parameters. The major parameters analyzed include dissolved oxygen, acidity, alkalinity, chloride, hardness, pH, conductivity, total dissolved solids and salinity. The results are presented in the Table 1. The results are comparable with the values of drinking water standards prescribed by different agencies.

Table 1. Results of water quality

Parameters	Principals room 1.5.2022	1 <sup>st</sup> Floor 2.5.2022	Girls Hostel 3.5.2022	Standard Value (BIS)
Dissolved Oxygen (mg/l)				6-8
Acidity(mg/l)				200
Alkalinity (mg/l)				200
Chloride (mg/l)				250
Hardness (Total)	176	140	172	200
Conductivity (µs)				
pH	7.96	7.94	7.86	6.5-8.5
Total Dissolved Solids (ppm)	250	250	250	500
Salinity (ppt)				
Total coliform	0	0	0	0
Fecal coliform	0	0	0	0

### **Water Management**

The source of water used in the College are two wells present in the campus. These wells are recharging with rainwater from the roof. A total of 18000L of water is pumped out from the well every day (Table 2). Wastage of water from the lab is reduced by adopting microscale analysis. An average of 3,60,000L of water is used by the College per month.

**Table2.**

SLNO	PARAMETERS	Response	Remarks
1	Source of water	Municipality	
2	No of Wells		
3	No of motor used	2	
4	Horsepower–Motor	1 hp	
5	Depth of well–Total		
6	Water level		
7	Number of water tanks	3	
8	Capacity of tank	14000 lt	
9	Quantity of water pump every day	24000 lt	
10	Any water wastage/why?	Nil	
11	Water usage for gardening	650L/day	
12	Waste water sources	Lab,canteen	
13	Use of waste water	Nil	
14	Fate of waste water from labs		
15	Any waste water treatment for lab water		
16	Whether any green chemistry method practice in labs	“Microscale analysis“ is implemented for chemistry students	

17	Rain water harvest available?	no	
18	No of units and amount of water harvested	Nil	
19	Any leaky taps	NA	
20	Amount of water lost per day	NIL	
21	Any water management plan used?	NIL	
22	Any water saving techniques followed?	NIL	

## EnergyAuditReport

Table4 showstheenergy consumptionpatternof thecollege for a month.The college hasconsumed an average of 9515.15 kW/hr electricity in a month and the one year electricity billamount was1,97,090/-.

Table4

Sl No	Electrical appliances /instruments	Number	Powe r (W)/ unit	Totalp ower( W)	kW	Operatio n /day	kW /hr	No of days in mont h	Total consump tion per month
1	CFL	63	14	882	0.882	4	3.528	25	88.2
2	TUBE	272	38	10336	10.336	4	41.344	25	1033.6
4	LEDBULB	97	9	873	0.873	4	3.492	25	87.3
5	LEDTUBE	42	20	840	0.84	4	3.36	15	50.4
6	PROJECTOR	10	280	2800	2.8	1	2.8	25	70
7	SPEAKERS	36	10	360	0.36	1	0.36	25	9
8	FAN	233	60	13980	13.98	4	55.92	20	1118.4
9	COMPUTER	140	250	35000	35	4	140	20	2800
10	LAPTOPS	10	50	500	0.5	4	2	20	40

11	PRINTERS	2	60	120	0.12	1	0.12	20	2.4
12	PHOTOSTAT MACHINE	6	650	3900	3.9	2	7.8	15	117
13	SCANNER	1	50	50	0.05	0.5	0.025	15	0.375
14	UPS	3	1000	3000	3	12	36	20	720
15	INDUCTION	1	2000	2000	2	0.25	0.5	15	7.5
16	A/C	2	7000	14000	14	1	14	15	210
17	REFRIGERATOR	7	150	1050	1.05	24	25.2	30	756
18	TABLEFAN	2	55	110	0.11	2	0.22	25	5.5
19	MIXERGRINDER	2	750	1500	1.5	2	3	15	45
20	OVEN	3	1500	4500	4.5	2	9	10	90
22	CENTRIFUGE	2	850	1700	1.7	0.25	0.425	8	3.4
23	AUTOCLAVE	1	1700	1700	1.7	1	1.7	4	6.8
24	ULTRASOUND	1	700	700	0.7	0.25	0.175	5	0.875
25	LAMINARFLOW	1	600	600	0.6	1	0.6	15	9
26	EXHAUSTFAN	1	32	32	0.032	4	0.128	25	3.2
27	IRONBOX	2	2000	4000	4	0.25	1	15	15
28	SEWINGMACHINE	6	100	600	0.6	4	2.4	25	60
29	COLOURBULB	13	60	780	0.78	1	0.78	5	3.9
30	INCUBATOR	2	40	80	0.08	4	0.32	25	8
31	DISTILLATIONUNIT	1	1000	1000	1	1	1	12	12
32	SANITARYNAPKIN INCINERATOR	6	1200	7200	7.2	1	7.2	25	180

Table 5

RoomNo./name/Floor	Electricaldevice/items	Number	Power (watt)	Power consumption overall (units)	usage time(hr/day)
Ground floor	Tubelight	74	3080	93.66	10.00 am – 5.00 pm
	Fan	32	2560		
	Air conditioner	2	4000		



	LED	19	380		
	Wall fan	17	1360		
	Computer	10	2000		
1 <sup>st</sup> floor	Tubelight	51	2040	107.94	10.00 am – 5.00 pm
	Fan	41	3280		
	LED	29	667		
	Wall fan	8	640		
	Computer	44	8800		
2 <sup>nd</sup> floor	Tubelight	47	1880	35	10.00 am – 5.00 pm
	Fan	40	3200		
3 <sup>rd</sup> floor	Tubelight	63	2520	56	10.00 am – 5.00 pm
	Fan	49	3920		
	Stand and exhaust	3	240		
	Computer	8	1600		
Ladies Hostel	Tubelight	33	924	23	5.00 pm – 10.30 am
	Fan	30	2400		
Annex Building	Tubelight (LED)	84	1680	28	10.00 am – 5.00 pm
	Fan	29	2320		
Solar power					

*Item: Bulbs(CFL, incandescent, LED); A/c, fan, computer, instruments*

### **Solar energy installation: nonrenewable to renewable energy transformation**

Electricity consumption, Backup power source, Environmental sustainability- Solar energy is now getting used in almost every sector like home, industry. Recently a well-built solar panel project for educational institution is getting lots of popularity. The Institute, Prasanta Chandra Mahalanobis Mahavidyalaya, successfully installed Grid Connected Rooftop Solar PV with the help of Govt. Of West Bengal and Govt of India Funded project, for reduce dependency on fossil fuel produced electricity, which have deep

impact on institutional financial and environmental manners. Such practices have positively enhances the institutional overall quality and upgrading knowledge of faculty members and students regarding renewable energy and environmental sustainability. Mentioned below are some of the objectives for solar panel project for the institution are...

❖ *To reduce institutional electricity consumption:*

By installing solar Photovoltaic power plant, dependence on fossil fuels produce electricity will be reduced. It will be eventually decrees the institution's total electricity consumption rate.

❖ *To ensure a backup power source:*

We depend on electricity, without power connections are lost, fan and lights go out and some time its hamper PowerPoint presentation during class. Through inverter connectivity establishment, it will be ensure the backup power source in emergency condition. It will be help to keep the lights on and they maximize renewable energy usage on cloudy days.

❖ *To protect the environment:*

Solar power production generates electricity with no environmental impact. It's good for us and for our planet. Through this positive way of transformation the college campus will be eco-friendly and pollution free.

The Prasanta Chandra Mahalanobis Mahavidyalaya believes that, this type of traditional renewable to non renewable energy consumption transformation is a motivated work as well also financial and environmental benefit, which can be a significant factor in institute's success. When staff and students are motivated through this work, is more effective at achieving its objectives and goals. For this reason, the institute has understood the power of this practise and successfully implemented Solar PV Power Plant with PV array Capacity of 10 kWp.

Renewable energy is energy derived from natural sources like Sunlight and wind, such sources that are constantly being replenished. Solar energy is the most abundant of all energy resources; through the photovoltaic (PV) effect Solar panels convert the sun's light (photons) to electricity (voltage) to provide electricity. Prasanta Chandra Mahalanobis Mahavidyalaya, Bonhooghly- 700108, has been installed Grid Connected Rooftop Solar PV Power Plant of PV array Capacity of 10 kWp by M/s Larsen & Toubro Limited on specifications BIS/MNRE with the help of Govt. Of West Bengal and Govt of India Funded



project.

Pic: 1 Array field at roof top of the Institute

Pic:2 Inverter connectivity

The impact of the practice has been obvious. The significant benefits of getting a solar panel project for the institution are... With the help of Govt. of West Bengal and Government of India (MNRE) funded project the institution successfully implemented Grid Connected Roof top Solar PV Power Plant of PV array Capacity of 10 kWp. With this the Inverter (Serial No: 02457112019) has also setup in the institution. After successful implantation a drastically changed has been seen in electricity consumption rate, it becomes less. By using solar panels in school it can also help to reduce pollution and carbon footprint and makes the instituted independed electrify campus, which will be able to draw the attention of those who care about nature, carbon emission, pollution and the greenhouse effect. Students are also aware about the environment protection.

### **Waste management**

Waste management is important for an ecofriendly campus. In a college different types of wastes are generated, its collection and management are very challenging. The following data provides the details of the waste generated and the disposal method adopted by the college.

**Table 5. Different types of waste generated in the college and their disposal**

Types of waste	Particulars	Disposal method
E-Waste	Computers, electrical and electronic parts	Direct selling
Plastic waste	Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc	Direct selling
Solid wastes	Damaged furniture, paper waste, paper plates, food wastes	Reuse after maintenance energy conversion
Chemical wastes	Laboratory waste	Neutralise with water
Waste water	Washing, urinals, bathrooms	Soak pits
Glass waste	Broken glass wares from the labs	Direct selling
Sanitary Napkin	-	Napkin Incinerators

#### Waste management Practices adopted by the college

For the last few years, college is following zero organic waste protocol throughout the campus. The food waste generated by the students and staffs are taken by them to their own home, so that, minimum waste is generated inside the campus. In addition, the organic waste generated in the canteen is used as feed for bio gas plant and the bio gas is used as fuel in college canteen. Vegetable waste and other leaf litters were used to feed in the vermi-compost pit and the resulting vermicast is used as manure in the garden. The chemicals from the laboratories are disposed in a sealed tank along with water, so that the chemicals undergo neutralization with the water.

#### Eco-club Activities

Eco Club of our college organizes Special lectures on different current issues of the conservation and restoration of ecosystem. They take very important initiatives for tree plantation and plantation of medicinal plants in the college ground. The students, teachers

and nonteaching members are the members of the Eco club. The students give waters to the plants weekly. Eco club of our college celebrates World Environment Day i.e. on 5<sup>th</sup> June with NSS of the college.

**Green  
Campus**

Total number of plant species identified

Total number of plants in the campus

**Table6. List of FLORA AND FAUNAL GROUPS in the campus**

SINo	Common/local name	ScientificName
1	Bakul (Broad Leaf Privet)	<i>Ligustrum Lucidum W.T. Aiton</i>
2	Aam (Mango)	<i>Mangifera indica</i>
3	(Honey Locust)	<i>Gleditsia tricanthos L</i>
4		
5	Kadom (Cherimoya)	<i>Annona Cherimola Mill</i>
6	Kadom (Cherimoya)	<i>Annona Cherimola Mill</i>
7	Arjun (Arjun)	<i>Terminalia Arjuna</i>
8	Jam (Jambolan)	<i>SyzygiumCumini (L.) Skeels</i>
9	Bel (Bila)	<i>Aegle Marmelos (L.) Correa</i>
10	Neem (Neem)	<i>Azadirachta Indica</i>
11	Segun (Bankok Teak)	<i>Tectona Grandis L.f.</i>
12	Lambu tree (Longan)	<i>Dimocarpus Longan Lour</i>
13	Ashoke (Ashoka Tree)	<i>Polyalthia Longifolia (Sonn) Thwaites</i>
14	(Christmas – Bells)	<i>Trichilia DregeanaSond</i>
15	Mahua (Mahua)	<i>Madhuca Indica</i>
16	Neem (Neem)	<i>Azadirachta Indica</i>
17	Rakta Chandan (Rakta Chandan)	<i>Pterocarpus Santalinus</i>
18	Ritha (Ritha)	<i>Sapindus Mukorossi</i>

19	Bahera (Bahera)	<i>Terminalia Bellirica</i>
20	Haritaki (Haritaki)	<i>Terminalia Chebula</i>
21	Segun (Bankok Teak)	<i>Tectona Grandis L.f.</i>
22	Kathbadam (Tropical Almond)	<i>Terminalia Catappa L</i>
23	Kathbadam (Tropical Almond)	<i>Terminalia Catappa L</i>
24	Shal (Princess tree)	<i>Paulownia tonentosaSteud</i>
25	Neem (Neem)	<i>Azadirachta Indica</i>
26	Segun (Bankok Teak)	<i>Tectona Grandis L.f.</i>
27	(Weeping Fig)	<i>Ficus Benjamina L</i>
28	Sajne (Moringa)	<i>Moringa Oleifera Lam</i>
29	Aam (Mango)	<i>Mangifera indica</i>
30	Bakul (Broad Leaf Privet)	<i>Ligustrum Lucidum W.T. Aiton</i>
31	Neem (Neem)	<i>Azadirachta Indica</i>
32	Aam (Mango)	<i>Mangifera indica</i>
33	(Ironwood Cassia)	<i>Senna Siamea (lam) H.S. Irwin &amp; Barneley</i>
34	Chatim (Ditabark)	<i>AlstoniaScholaris (L.) R. Br.</i>
35	Segun (Bankok Teak)	<i>Tectona Grandis L.f.</i>

## LIST OF THE REPTILES AND ANIMALS

Name of the animal/reptile	Scientific name	number
Mongoose	<i>Herpestidae</i>	8
Monocled cobra	<i>Naja kaouthia</i>	2
Rat snake	<i>Pantherophis obsoletus</i>	3
Squirrel of Bangladesh	<i>Funambulus palmarum</i>	10-15
Garden lizard	<i>Calotes versicolor</i>	8-10
Cat	<i>Felis catus</i>	4
Indian dog	<i>Canis lupus familiaris</i>	3

## LIST OF THE BIRDS

Name of the species	Scientific name	number
Pigeon	<i>Columbidae</i>	8-10
Crow	<i>Corvus</i>	20-25
Indian Myna	<i>Acridotheres tristis</i>	15-20
Kite	<i>Milvus migrans</i>	2-3
The Indian cormorant	<i>Phalacrocorax fuscicollis</i>	12-15
Grey backed shrike (migrated bird)	<i>Lanius tephronotus</i>	30-50
Sparrow	<i>Passeridae</i>	25-30
Jungle babbler	<i>Turdoides striata</i>	20-25
White-breasted waterhen	<i>Amaurornis phoenicurus</i>	5-7
Whooping Crane	<i>Grus americana</i>	30-35

## SUGGESTIONS AND RECOMMENDATIONS

1. Lab waste water quantity is not measured and drained to municipal drainage system.
2. More solar planes should be installed to make the path of sustainability.
3. Rain water Harvesting (RWH) is to be done technically.
4. Planning of chemical consumption and purchase to be ensured.
5. Composting of bio degradable waste to be scientifically done.
6. Septic tank sewage water analysis is to be done.
7. Plan for green belt development to be prepared.
8. Department wise electrical load consumption is to be done.
9. Energy used by each appliance is to be estimated.
10. List of equipment/instrument and their consumption of (energy/water) is to be estimated.
11. Awareness for energy and water conservation among students and staff by displaying boards.
12. Automatic leak detections in water flowing pipeline.
13. Water usage reduction techniques to be used.

### GreenAuditChecklist

<b>I. WaterEfficiency &amp;WastewaterManagement</b>			
<b>Sl.No.</b>	<b>Measures</b>	<b>Status</b>	<b>Remarks</b>
1	RObasedwaterpurifiersfordrinking water	√	
2	Aerators towatertaps	√	
3	Automatictoiletfaucets	√	
4	Dripirrigation/ Sprinklers (for plant wateringsystem)	√	
5	Dualflush toiletwithcistern	√	
6	Drymopping/cleaningmethodsadopted	√	
7	Sewagetreatmentplant forsewage recycle	X	
8	Rainwaterharvesting	X	
9	Regularmaintenanceforleakagefree plumbingssystem	√	
10	Useof low flow/flow control water equipmentorgadget	X	
11	Water balance diagram and water consumption monitoring at each consumption level	√	



12	Routine monitoring of water quality	√	
13	Awareness signs displayed for promoting water conservation	√	
<b>II. Energy Efficiency and On-site Energy Generation Mechanism</b>			
Sl.No.	Measures	Status	Remarks
1	Maintaining correct lux levels (70-300 lux) to avoid excessive light	X	
2	Computerized monitoring of electrical system	X	
3	On-site energy generation (Diesel generators, LPG)	√	
4	Use of renewable energy (Solar, biogas)	√	ONLY SOLAR
5	Photocell occupancy sensor for automatic light control	√	
7	Regular maintenance of electrical system	√	
8	Use of energy efficient equipment like VFDs, maximum star rated equipment.	√	
9	Use of energy saving bulbs (Compact fluorescent light/LED lights)	√	
10	Awareness signage on electricity conservation	√	
<b>III. Solid Waste Management</b>			
Sl.No.	Measures	Status	Remarks
1	Waste segregation practices and supporting hardware for waste segregation (Dry recyclable, organic, plastic, hazardous and E-waste)	√	
2	Setting up recycling/composting/biogas generation facility	X	
3	Minimize use of paper through digitalization	√	
4	Printing on both sides of paper/Reuse of printed paper/envelops	√	
5	Mechanism for collection & disposal of E-waste as applicable regulation	√	
6	Single use plastic free campus	√	
7	Inventories of waste generation and records of waste disposal	X	

8	Recycle/archiving of paper waste	X	
9	Segregation of dry and wet waste	√	
10	Purchase of electronic products from companies which have service for disposal of product with buyback policy	X	
11	Recreating into new sustainable products	X	

#### IV. Good Daylight Design

Sl.No.	Design Feature	Status	Remarks
1	Wide corridors open to daylight	√	
2	Broad doors and windows allowing daylight	√	
3	Building architecture which allows sunlight within buildings	√	
4	Presence of Skylight/Rooflight	NA	
5	Enough natural illumination in classrooms/seminar halls/laboratories	NA	
6	Ultraviolet (UV) filtering windows/Use of exterior louvers or light coloured fabric or blinds for windows to control glare	X	
7	Operable/openable windows.	√	
8	Use of glass as a facilitator of natural light	√	
9	Use of insulated and tinted glass to filter heat gain	X	

#### V. Ventilation

Sr. No.	Design Feature	Status	Remarks
1	Good ceiling height which allows internal air circulation	√	
2	Self-movement ventilators in the roof	√	
3	Wide windows and doors for classrooms, laboratories, seminar halls	√	
4	Wide corridors	√	
5	Operable louvers	NA	
6	Exhaust fans in kitchen/toilets	√	

#### VI. Temperature and Acoustic Control

Sl.No.	Design Feature	Status	Remarks
--------	----------------	--------	---------

1	Roof design & type (Double/Fake ceiling with plaster of paris etc.)	X	
2	Sandstone cladding/tiling outside the walls	√	
3	Specially designed walls for temperature control, Sound noise barriers for windows/walls	X	
4	Building construction allows diffused sunlight but not the heat. Specially designed glass walls/windows with better U value/factor depending upon climate conditions	NA	
5	Use of insulation material (e.g. autoclaved aerated blocks, hollow blocks, Thermocrete etc.)	√	
6	Use of water bodies/fountain to maintain temperature within building	X	
7	Climbing creepers on the walls	X	
8	Retrofitting the existing roofs with cool roof technology	NA	
9	Use of landscaping as sound barrier	NA	
11	Water free urinals (No flush urinals/ Zero flush urinals/ water less urinals/ air-based flushing system)	X	
12	Water balance diagram and water consumption monitoring at each consumption level	X	
13	Routine monitoring of water quality	√	
14	Awareness signs displayed for promoting water conservation	√	

#### **VII. Environmental Audit**

<b>Sl. No.</b>	<b>Type of audit</b>	<b>Status</b>	<b>Remarks</b>
1	Energy audit (includes energy consumption, thermal comfort, visual comfort)	X	
2	Sound/Noise and lux level monitoring (including indoor noise level, outdoor noise level)	X	
3	Water and waste audit (including water consumption, quality, solid waste generation, solid waste disposal process)	X	
4	Safety Audit	X	

#### **VIII. Universal Access and Efficient Operation and Maintenance of Building**

Sl. No.	Designfeature	Status	Remarks
1	Easyaccesstothemainentranceof thebuildingandminimumtwoexists	√	
2	Energyefficientelevator	√	
3	Carpooling by staff and students/ use ofPublic transport/ Use of bicycles andbattery-operatedvehicleswithin campus	NA	ONE CAMPUS
4	Preferredcarparkspacesfordifferently abled	√	
5	Ramp/stairswithhandrailsonatleastoneside	X	
6	Restrooms(toilets)incommonareas/ Restroomfordifferentlyabled	√	
7	Brailleassistancefordifferentlyabled	X	
8	Availabilityofwheelchair	X	
9	Emergencyresponseplanfornatural andmanmadeemergencies	NA	
10	Fireexits,assemblypoints,firstaids,firefight ingsystems	√	
11	Regularmaintenanceofbuilding	√	

#### IX. GreenProgram

Sl. No.	Greenprogram	Status	Remarks
1	Upcyclingofwaste.Recyclingbeyond booksi.e.paper,aluminium,plastic,e-waste	X	
2	Creationof “Green Team” in the institution/library	√	
3	Awareness programs on environment,energy management & safety (externalsessionsand academiccourses)	√	
4	Outreach,activities,greenprograms(Treepl antation,wastesegregation,plasticwastecol lection,cleaningetc.) records/photosof programs	√	
5	Presence of system/ methodology available for implementation of green initiatives and green projects (long term system-based continuity and not an isolated/ standalone activity)	P	
6	Mindset for reduction, recycle of waste (Green mindsets)	P	
5	Digitization	X	
6	E-archiving	√	

7	E-resources: E books, Online Journals, membership of consortium	√	
8	Maintaining green campus / Greening of campus	√	

**Status:** √:Available   X: NotAvailable   P:Planned/underconstruction   NA: Not Applicable



ARJUN TREE IN THE CAMPUS





SEGUN TREE



CHATIM TREE

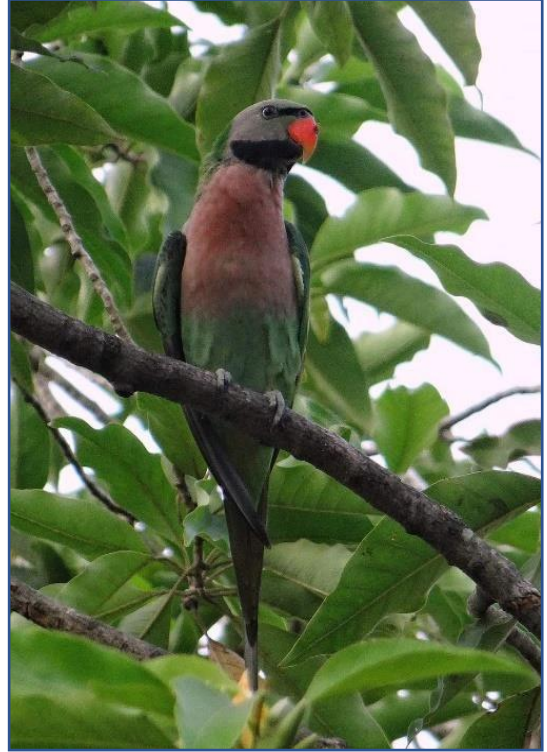


BAKUL TREE





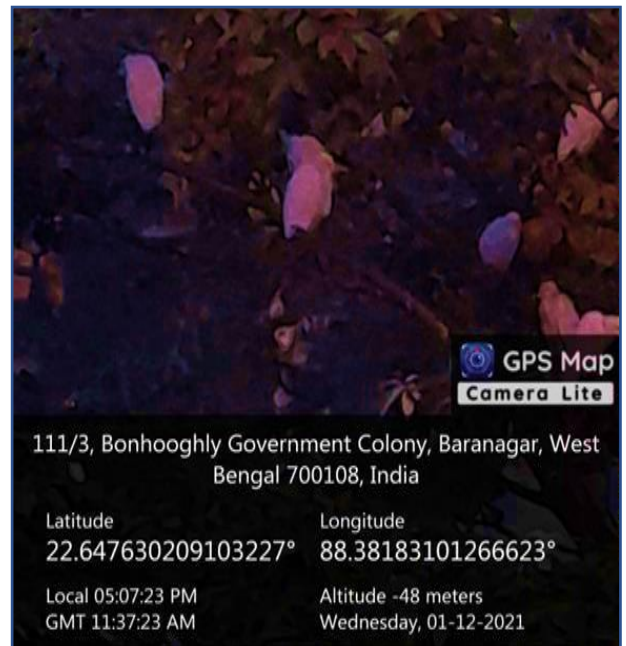
SEGUN TREE



GREEN PARROT



KODOM TREE







WATER COOLING MACHINE



AQUA GUARD MACHINE



GREEN BIN IN THE COLLEGE





NEEM TREE



KATHBADAM TREE



POSTERS MAKING FOR GREEN AND CLEAN CAMPUS BY THE STUDENTS





WATER RESERVOIR IN ROOF TOP OF THE COLLEGE



BLUE DUSTBIN IN COLLEGE



DRIVE FOR PLASTIC REMOVAL ON EARTH DAY 22/5/2022





**CLEANING THE CAMPUS BY THE STUDENTS**



**PLANTATION PROGRAMME BY THE FACULTIES**





111/3, Bonhooghly Government Colony, Baranagar, West Bengal 700108, India

Latitude  
22° 38' 51.71935" N

Longitude  
88° 22' 54.36322" E

Local 11:33:56 AM  
GMT 06:03:56 AM

Altitude -31 meters  
Tuesday, 23 Aug 2022

Note : Captured by GPS Map Camera Lite

**SOLAR PANEL INSTALLATION 2021-22**



111/3, Bonhooghly Government Colony, Baranagar, West Bengal 700108, India

Latitude  
22.648191754706204°

Longitude  
88.38179170154035°

Local 02:29:53 PM  
GMT 08:59:53 AM

Altitude -34 meters  
Thursday, 21-04-2022

**CAMPAIGN AGAINST USE OF PLASTICS IN SORROUNDING AREAS IN COLLEGE CAMPUS**





PLANTATION PROGRAMME ON WORLD ENVIRONMENTAL DAY ON 5/06/2022



MEDICAL PLANTA PLANTATION IN COLLEGE GARDEN

**NATIONAL DRINKING WATER QUALITY TESTING MONITORING AND SURVEILLANCE PROGRAMME**

Collaborative effort of Public Health Engineering Dte., Govt. of W.B., Panchayet & Rural Development Department of Govt. of W.B.,  
Department of Health & Family Welfare, Govt. of W.B.

Implemented by :-

# WATER TESTING LABORATORY

## PASCHIM BANGA VIGYAN MANCHA

North 24 Parganas District Committee

SUB DISTRICT LABORATORY, GOVERNMENT of WEST BENGAL, LAB ID: 001700

N/37/5, Banamalipur Road, Binoy Dey, Sushanta Pal Sarani, Barasat

email : watertestinglab.pbvm@gmail.com

Name of the Owner :	P.C.M.M COLLEGE	Date of Collection:	18.05.2022
		Sample collected from	Collected by Lab Personnel (1)
Address of the Owner :	Bonhooghly, 24 Parganas (N)	Sample received on:	18.05.2022
		Testing Start Date	18.05.2022
		Testing End Date	20.05.2022

### Indian Standards for Drinking Water (IS-10500:2012) & Testing result of the water sample :-

#### A. Physical Parameters:

	Methodology	Desirable Limit	Permissible Limit	Test Result
Colour				NOT AVAILABLE
Odour				NOT AVAILABLE
Temperature (°C)	Thermometry			29.5
pH	ELECTROMETRIC	6.50-8.50	No relaxation	7.96
Dissolved Solids, mg/l	TDS Meter	500	2000	250
Turbidity, NTU	NEPHALOMETRIC	1	5	NOT TESTED

#### B. General Parameters :

IRON, (as Fe) mg/l	PHOTOMETRY	1	No relaxation	0.3630
Manganese, mg/L	PHOTOMETRY	0.1	0.3	NOT TESTED
Total Hardness. (as CaCO <sub>3</sub> )	TITRIMETRIC	300	600	176

#### C. Toxic Substances :


TOTAL ARSENIC mg/L	PHOTOMETRY	0.01	No relaxation	0.009
--------------------	------------	------	---------------	-------

#### D. Bacteriological Quality:

TOTAL COLIFORM per 100 ml	MFT	0	No relaxation	0
FAECAL COLIFORM per 100 ml	MFT	0	No relaxation	0

#### Note :

#### Remark :

<p>SAMIRAN SENGUPTA (Chemist)</p>	 <p>RIMPA GUIN (Bacteriologist)</p>
---------------------------------------	--

\*The figures indicated under the column "Desirable Limit" are the limits up to which water is generally acceptable to the consumers.

\*The figures indicated under the column "Permissible Limit" are may be tolerated in the absence of alternative and better sources.

**NATIONAL DRINKING WATER QUALITY TESTING MONITORING AND SURVEILLANCE PROGRAMME**

Collaborative effort of Public Health Engineering Dte., Govt. of W.B., Panchayet & Rural Development Department of Govt. of W.B.,  
Department of Health & Family Welfare, Govt. of W.B.

Implemented by :-

# WATER TESTING LABORATORY

## PASCHIM BANGA VIGYAN MANCHA

North 24 Parganas District Committee

SUB DISTRICT LABORATORY, GOVERNMENT of WEST BENGAL, LAB ID: 001700

N/37/5, Banamalipur Road, Binoy Dey, Sushanta Pal Sarani, Barasat

email : watertestinglab.pbvm@gmail.com

Name of the Owner :	P.C.M.M COLLEGE	Date of Collection:	18.05.2022
		Sample collected from	Collected by Lab Personnel (1)
Address of the Owner :	Bonhooghly, 24 Parganas (N)	Sample received on:	18.05.2022
		Testing Start Date	18.05.2022
		Testing End Date	20.05.2022

### Indian Standards for Drinking Water (IS-10500:2012) & Testing result of the water sample :-

#### A. Physical Parameters:

	Methodology	Desirable Limit	Permissible Limit	Test Result
Colour				NOT AVAILABLE
Odour				NOT AVAILABLE
Temperature (°C)	Thermometry			29.5
pH	ELECTROMETRIC	6.50-8.50	No relaxation	7.96
Dissolved Solids, mg/l	TDS Meter	500	2000	250
Turbidity, NTU	NEPHALOMETRIC	1	5	NOT TESTED

#### B. General Parameters :

IRON, (as Fe) mg/l	PHOTOMETRY	1	No relaxation	0.3630
Manganese, mg/L	PHOTOMETRY	0.1	0.3	NOT TESTED
Total Hardness. (as CaCO <sub>3</sub> )	TITRIMETRIC	300	600	176

#### C. Toxic Substances :


TOTAL ARSENIC mg/L	PHOTOMETRY	0.01	No relaxation	0.009
--------------------	------------	------	---------------	-------

#### D. Bacteriological Quality:

TOTAL COLIFORM per 100 ml	MFT	0	No relaxation	0
FAECAL COLIFORM per 100 ml	MFT	0	No relaxation	0

#### Note :

#### Remark :

<p>SAMIRAN SENGUPTA (Chemist)</p>	 <p>RIMPA GUIN (Bacteriologist)</p>
---------------------------------------	--

\*The figures indicated under the column "Desirable Limit" are the limits up to which water is generally acceptable to the consumers.

\*The figures indicated under the column "Permissible Limit" are may be tolerated in the absence of alternative and better sources.