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AQAR-2023-24

7.1.6: Quality audits on environment and energy are regularly undertaken by the Institution:

(Reports on environment and energy

Audits submitted by the auditing agency)



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7.1.6: Quality audits on environment and energy are regularly undertaken by the Institution:

(Reports on environment and energy Audits submitted by the auditing agency)

Sr.	Particular	Availability
No.		
1.	Green audit	$\sqrt{}$
2.	Energy audit	$\sqrt{}$
3.	Environment audit	$\sqrt{}$
4.	Clean and green campus	
	recognitions/awards	
5.	Beyond the campus environmental	$\sqrt{}$
	promotional activities	

Options: A. 4 or All of the above

B. Any 3 of the above

C. Any 2 of the above

D. Any 1 of the above

E. None of the above

Answer: A. 4 or All of the above

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BMG CONFORMITY ASSESSMENT SERVICES PVT. LTD.

C - 338, 2nd Floor, Sector - 10, Noida - 201301, Gautam Budh Nagar, (U.P.) Phone No.0120-4374608

Ref. BMG/SGBPC0907/S1 Certificate No. 22ZOCQ2866Q Date: 28/07/2023

To,

SETH GYANIRAM BANSIDHAR PODAR COLLEGE Rambilas Podar Road Nawalgarh-333042, Jhunjhunu, Rajasthan India.

CONTINUATION OF REGISTRATION

Subject: Continuation of Certification – ISO 9001:2015

We are pleased to inform you that as per on- site Annual Surveillance Audit, we are confirming our auditor's recommendation for continuation of registration. Congratulations on Successfully completion of Surveillance Audit and continuation of Certificate Registration. We appreciate the hard work that your organization has undergone to maintain this certificate.

Your 2nd Surveillance will be due on 28/07/2024.

If you have any other queries, then feel free to call me or mail me.

For: BMG Conformity Assessment Services Pvt. Ltd

Nosessment Services Par

Auth. Signatory

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CERTIFICATE

This is to certify that detailed Environment Audit of Seth Gyaniram Bansidhar Podar College, Nawalgarh 33042 has been successfully conducted. The activities and measures carried out by the College have been verified based on the reports submitted by the College and found to be satisfactory. The College has evolved policies on Environment and Green campus in line with the Sustainable Development Goals. The efforts taken by the members of the faculty, students, support staff and the Management towards creating a strategic change in attaining holistic environmental sustainability is highly appreciated and commended.

NAME

- 13. Dr Dau Lal Bohra, Head, P.G Department of Zoology (Coordinator)
- 14. Prof. Suman Saini Head, P.G Department of Botany (Member)
- 15. Prof.Mahima Soni, P.G Department of Zoology (Member)
- 16. Prof. Ankit Jahgir, P.G Department of Botany (Member)
- 17. Prof. Deepak Kumar Head, P.G Department of Geography (Member)
- 18. Prof. Krishan Kumar Jangir, P.G Department of Physics (Member)



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NAWALGARH RAJASTHAN



Affiliated to Pandit Deendayal Upadhyaya Shekhawati University, Sikar, Rajasthan

ISO Certification: 9001:2015 PHONE: +91-8619868884 EMAIL: <u>principal@podarcollege.com</u>

Green Audit Report

2021-2022

Prepared by
IQAC
SETH GYANIRAM BANSIDHAR PODAR COLLEGE,
NAWALGARH &
INTERNATIONAL QUALITY CERTIFICATION SERVICES

Audited by INTERNATIONAL QUALITY CERTIFICATION SERVICES

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Acknowledgement

Seth Gyaniram Bansidhar Podar College has been working at the forefront since its inception by conducting environmental campaigns, workshops and other extension activities to bring about social change for national and international development. College is aware the needs of the green audit for the maintenance and future development of the College. In its pursuit of excellence, College has recognized itself to improve the environmental quality and maintain its unique pristine ecosystem for the future generation of students and all the inhabitants of the campus as well as the Society. Although we have been taking a number of steps to conserve and protect our environment but this report of 2021-2022 is the first formal effort to document the results of our investigation and interpret the information of all the required parameters of the Green audit process. Seth Gyaniram Bansidhar Podar College aims to take up the policy and efforts at every level to avert ecological catastrophe on a global scale by supporting the climate neutrality goals committed by the Government of India. As a part of this, efforts are taken to continuously monitor the sustainability of the academic process by constituting this Green Audit Committee consisting of faculty members working in this arena to collect basic data of the environmental parameters within the campus so that the environmental issues are resolved within the campus as well as surrounding. The Green Audit Committee has tried to identify the current / emerging environmental issues so as to monitor the environmental management practices adopted in the College along with subsequent impact of these on the College environment.

This report is an outcome of efforts of each and every member of College Green Audit Committee who undertook this green audit to gather information on every parameters of the environment, compiled and analyzed the data to recognize the immediate and serious threats within the campus so that opportunities can be explored to bring about continuous improvement in our environmental performance and standards by our suggestions and recommendations put forth. It is hoped that this report will receive adequate attention of all the stake holders for pursuing a bottom-up approach in which we stand to face the challenges in future.

The sincere encouragement and administrative support of Prof. Dr. Satyendra Singh, Principal, Seth Gyaniram Bansidhar Podar College during the conduct of the study has been a guiding force and I on behalf of the Green Audit Committee-2019-2020 express my heartfelt gratitude to Dr. Satyendra

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Singh for his kind gesture. I am indebted to the HoDs, Teachers, officers, all staff members and all the campus dwellers of Colleg for their kind support in collating data for the report. Special thanks are due to State Pollution Control Board for providing support to conduct the Air Quality assessment; Dr. Ravindra Goswami and his research team for Floral Diversity; Dr. Vidhyadhar Sharma and his research team for his initiate on Bio-waste management; Dr. Harsh Kumar on Environmental Quality, Dr. Dau Lal Bohra and his research team on Biodiversity and Water parameters, Prof. Chetan Dadheech and his research team on water quality and Er. Sandeep Jangir Engineer and his team for basic data on the campus. At last but not the least, I would like to offer my heartfelt thanks to all the members and convener of the Seth Gyaniram Bansidhar Podar College Green Audit Committee -2021-22 and Eco & Biodiversity Conservation Club for their untiring efforts in compiling the report.

I sincerely hope and believe that the efforts made by the present Green Audit Committee will be helpful for Seth Gyaniram Bansidhar Podar College and I hope that it becomes a responsibility of all the stakeholders of this Collge to follow the proposed management plan suggested in the report to reduce our impact on our environment.

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Introduction

Seth Gyaniram Bansidhar Podar College, Nawalgarh is a pioneer institution in the Shekhavati region, affiliated to Pt. Deendayal Upadhyay Shekhawati University has been engaged in its pursuit of academic excellence in this remotest and landlocked part of the country. The College Run by the Anandilal Podar Trust, Seth Gyaniram Bansidhar Podar College, Nawalgarh is one of the premier educational institutions in the Shekhawati region. The college has grown from a Brahm charyashram established in 1921. Before the formation of university of Rajasthan, the college had been affiliated to Agra University. It has been a rare honour for the college to have Mahatma Gandhi as the first Chairman Trustee. It needs to be mentioned here that the Trust came into being as the result of a benevolent donation by Shri Anandilalji Podar for the uplift of education in the region. Our Present Chairman (since 1989) Shri Kantikumar R. Podar is a very dynamicand nationally and internationally well-known person. He has been Chairman / President of 15 important Trade & Industrial bodies, many of which are of national nature and character. He has headed institutions like FICCI (Apex trade body of trade & industry in India) Indian cotton Mills Federation, All India organization of Employers, Indian Merchant Association Chamber of Economic & Scientific Research Foundation. At the behest of Government of India, he formed the SAARC Chamber of commerce and industries. He was the president of the Chamber. He has been on senate of University of Bombay for six years. He has brought new life and culture to Nawalgarh institutions, which have almost doubled, under his leadership. The College has the distinction of being the first UG and the first PG College in the erstwhile State of Jaipur. The College is an important part of the chain of Institutions running under the Trust, the main objective of which has been to provide education. To give a concrete shape to this objective, the Trust has established various educational, management, medical and technical institutions. These institutions, numbering over 50, are presently imparting education to thousands of students

LOCATION ESTABLISHMENTS

The College at present runs various programs under Science, Arts & Commerce Faculty. A total number of 21 programmes are offered under this College, including Under Graduate, Post Graduate Diploma and other Post Graduate Programs. More than 1800 students are enrolled in the campus during the academic year pursuing different. The University also encourages cutting edge research experiences in different science and technology disciplines. Not with standing its marginal location and other communicational disadvantages, this college has always tried to compete with other

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college of the region in terms of academic achievement, research and innovation and placement records, which have been well reflected.

The College has 17 Departments and every Department has state of the art classrooms, laboratories, 24-hours internet connectivity, computer centre, library, free Wi-Fi facility across the Campus, playgrounds, open theatre, health centre, Cafeteria, food court, hostels, guest house etc. The teaching faculties are dynamic, caring and friendly. Academic & curricular sessions are regularly complemented with sports and other socio-cultural activities like film screening, musical performances, art festivals, debates, intra-College fetes, sports tournaments etc.

Seth Gyaniram Bansidhar Podar College offers a vibrant campus life and one of the safest and most secure academic environments in the entire region.

The Campus has a vast scenic landscape with flower and fruit gardens offering a serene and tranquil backdrop. The groves of trees, fragrance of flora, calls of flocks of birds, swarm of butterflies, reptiles etc. ease away the drudgery of academics, thereby relaxing and rejuvenating a student's mind.

Green Audit at Seth Gyaniram Bansidhar Podar College, Nawalgarh

The policy of most of the Governments world over is to have a policy which can enhance labour productivity and economic growth through accumulation of human capital. The development of the work force can largely be influenced by improving the knowledge and skills of the work force which in turn influence the future well-being of the nation with considerable gains in GDP. This has led Trust to devote huge resources in improving the educational standards of its Citizens and College has also meticulously worked in on these lines to bring about a change. With the increasing cutting-edge research experiences in different science and technology disciplines there has been development and growth of college also which has led to increasing carbon footprints. The policy of the Government of India under the leadership of our Honourable PM Shri. Narendra Modi Ji has also been in this direction, by declaring the mission of 'Swachch Bharat Abhiyan', whose voice resonates with the message of "Green Campus, Clean Campus" mission launched by the University Grants Commission for all higher educational institutes. The National Assessment and Accreditation Council (NAAC), which is an autonomous body funded by the University Grants Commission of Government of India, has made 'Environmental Consciousness' mandatory criterion (Criterion VII) for grading educational institutes.

At College has been pursuing the policy of Sustainable development and at this juncture green audit

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becomes part and parcel of management of the campus with due scope to take up academic activities within the close circles of environmental conservation and management.

Green auditing is the process of identifying and determining whether the practices taken up at College are eco-friendly and sustainable. It is an effective ecological tool that helps to create a culture of sustainability by implementing it through regular identification, quantification, documenting, reporting and monitoring of environmentally important components. Green auditing will thus help in preserving the rich floral and faunal diversity in and around the campus; garnering interest and creating awareness among the stakeholders in future.

College is committed to responsible stewardship of resources and to demonstrate leadership in sustainable academic practices. The College supports the climate neutrality goals as outlined by the Government of India and thus will monitor the sustainability of the research and education mission through the Green Audit Committee.

The policy goals of the College Green Audit are:

- Identification and documentation of the strengths and areas of improvement within sustainable operations of administrative, academic and research laboratories via gap analysis, and outlining actions that can be implemented to further targets.
- Increase environmental awareness throughout campus and motivate all stakeholders for optimized sustainable use of available resources.
- The importance of the program is to collect baseline data of environmental parameters and resolve the environmental issue before they become a problem

To achieve the aforementioned goals, College Green Audit Committee endeavours towards the following objectives:

- * To identify current and emerging environmental issues.
- To monitor environmental management practices.
- * To examine the current practices that can impact the environment.
- To create awareness among the various stakeholders of the University.
- To prepare a Green Audit Report on green practices followed by different Departments, support services and administration.

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METHODOLOGY ADOPTED

The methodology adopted to conduct the Green Audit of College will have the following components:

- > Onsite field visits were conducted by the Green Audit Team as and when necessary.
- > Enquiries were conducted amongst different stakeholders to know about the various components in connection with water use, energy consumption and waste disposal, etc.
- > The water quality analysis was done using standard protocols.
- GIS tools were used to prepare the map of the campus for LULC survey.
- Air quality analyses of the College campus were carried out using standard protocol.
- > The noise levels were measured using a Sound Level Meter at selected sampling stations during the day and night time within the campus.
- > Different standard protocols were followed to document and estimate the floral and faunal account.

DIFFERENT AUDIT STAGE

College started its green audit by assessing the green cover followed by looking into all the aspects which have been a part of the green audit viz. recording the land use and land cover (LULC), water availability and usage, waste generate and their management practices, recording of the environmental parameters, energy consumption and conservation strategies, etc. The members of the audit team recorded the different facilities at the College campus, determined different types of appliances and utilities (Water cooler, taps, toilets, lights, fan, ACs etc.) as well as measured the usage per item (Watts indicated on the appliance or measuring water from a tap) and identified the relevant consumption patterns (such as how often an appliance is being used) and their impacts. The staffs, students and other stakeholders were interviewed through structured questionnaires to get details of usage, frequency or general characteristics of different appliances. Data collection was done by onsite visit and also through questionnaires in different sectors such as water, energy, waste, biodiversity status. The ambient quality of the campus was recorded to monitor the environmental status within the College campus using standard protocols. The data obtained were collated and analyzed to prepare this audit report of College.

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POST AUDIT STAGE

Land use and land cover

The whole campus is interspersed with scattered trees at few places thus, making it a picturesque landscape suitable for a wide spectrum of flora and fauna. The Academic Departments and residential quarters/hostels are in front part of the college.



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Table 1: Land use categories in College Campus

Sl. No.	Land Use Category	Area (in approx. Sq. feet)
1	Botanical Garden and Forest Park	5673
2	Play ground	45842.05 Sq. yr.
3	Orchards	22100
4	Road	Nil
5	Foot Path	29500
6	Pump Station	Nil
7	Protection Wall	3065 running face
8	Drain	-
9	Retaining Wall	2060 running
10	Building Under Construction	Nil
11	Overhead Tank	100
12	Car Parking	8400

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13	Garage	Nil
14	Building	49120
15	Transformer	300
16	Generator	Nil
17	Security House	120
18	Water Pump	3
19	Septic Tank	70,000 ltr
20	Tin Shed	-
21	Power Sub Station	-
22	Toilet	1500
23	Garden	31000
24	Statue	603

Observations

- The vegetation areas are found to be reducing over the years due to the coming up of new buildings.
- Occurrence of dense weed growth is a common feature after the rains and so the area is being cleaned every year in order to give a aesthetic look of the campus.
- > Roadside avenue trees lack attention.
- Drainage links were found to be missing.

Suggestions and Recommendations

- Future plans of construction and activities should be based on the Landscape.
- > Botanical Garden and Forest Park, area needs to be conserved as carbon sink.
- The trees planted needs to be managed regularly.
- > The proper maintenance of garden area and Ground should be maintained regularly

Water Audit

GANIRAN GANIRAN Water is an important natural resource and is available naturally depending on the climate and topographic features. All organisms are dependent on water for their living. Although water is available in nature, portable water is not available freely for human consumption. There have been many practices to conserve water so that it can be readily available for human use. It has been noticed that due to unsustainable use of water resources there is contamination and depletion of the ground water and also water which is available in various reservoirs like lakes, ponds, streams etc which is becoming more alarming. Therefore it becomes increasingly important to conserve protect and

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manage the water resources availability and usage so that it is sustainably used within the university campus. Water auditing is conducted to evaluate the quality, availability and usage of water; the facilities available and methods adopted to revitalize and use it so that the resources are intact without leading to deterioration.

Uses and management

A total of L of water is pumped every day for the College dwellers as well to meet the daily demands of the academic and administrative Departments (Table ...). The daily use of the water during 2021-2022 was approx. L per day.

Table 2: Source and uses of water in the college campus

Sl. No	Parameters	Information		
1	No of Wells	4		
2	No of the motors used	4		
3	Horsepower- motor	12 HP, 10 HP, 3.5 HP		
4	Depth of well- Total	600 ft., 350 ft		
5	Capacity of Tank(Total)	20000 L		
	Quantity of water used in different sections	of the Campus		
6	Sections	Water Used		
7	Hostel	12000 L		
8	Resident quarter	10000 L		
9	Administrative block	1000 L		
10	Construction work	1 Lc Ltr. Per Year		
11	Canteen	500 L		
12	Urinals and Toilets	1000 L		
13	Departments	500 L		
14	Gardens	2000 L		
15	Laboratories	500 L		
16	Drinking	2000 L		
17	Leakage	Nil		
18	Main purposes of water use inthe campus	Gardening & Drinking		
19	Nos. of water tap excluding households/ residential quarters)	35		
20	Water cooler and drinking waterfiltration facility (excluding households/ residential quarters)	3 Water Cooler 3 Water Filteration		
21	Nos. of urinal and toilets(excluding households/ residential quarters)	Urinal-18 Toilets- 14		
22	Nos. of waterless /bio-toilets	Nil		
23	Any water wastage/why?	Nil		

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24	Water usage for gardening	10000 L
25	Wastewater sources	Yes
26	Use of wastewater	Yes
27	The fate of wastewater from labs	Yes
28	Any wastewater treatment forlab water	Yes
29	Whether any green chemistry method practiced in Labs	Yes
30	Rainwater harvesting	Yes

Water Quality assessment

oxidation and mixing chamber

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GANIRAN GANIRAN The water requirements of College are met from two underground tube wells. The water recovered from the wells using motors are treated in an iron removal plant cum oxidation and mixing chamber so that it is portable for consumption. Without treatment there is huge sediment and the water is not portable. Water samples from different sources were collected and analysed for its quality parameters and the results are presented in Table 3.

Table 3: Water quality analysis report of the water samples obtained from different sources within College campus

Water pН Turbidity Calcium Magnesium COD Type of Iron Sample Source (ppm) Range (NTU) (ppm) (ppm) (ppm) (ppm) point of use purifier used 6.5-9 1.2-5.3 Raw 50-96 0.05-6.2-8.1 1.2-1.9 Tap water 55-Water 4.5 65 25-30 6.8-7 0.8-1.2 2.9869 Drinking Resin cum 0.01-0.8096 35-Water RO-UV 0.2 44 purifier (Model Kent MineralRO) Raw Feed Feed 52 6.2-6.5 10-22 0.4-Water underground 0.7 water Treated 59 6.3-6.6 0.8-3 Iron Water Removal Plant cum

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Observations

- College does not have a reusable water treatment facility for wastewater generated from Academic buildings, Administrative buildings, library, residential quarters, guest houses, hostels, laboratories, canteen, etc.
- At times there is overflowing of overhead water tanks.
- Water consumption is not properly monitored within the campus as there are no systems to record it.
- Water from the building is discharged outside through drainage system connected to the Nawalgarh Sewage system

Suggestions and Recommendations

- Rainwater harvesting systems could be improved so that there is a facility available inevery building for reusing of water.
- A water conservation drives should be initiated by involving all the stake holders.
- Automated sensors can be installed to prevent the overflow from water tanks.
- Automated taps could be used so that usage of water can be reduced.

Waste disposal audit

Pollution from waste is aesthetically unpleasing and results in large amounts of litter in our communities which can cause health problems. Human activities create waste, and it is the waythese wastes are handled, stored, collected and disposed of, which can pose risks to the environment and public health.

Solid waste can be categorized into three types: biodegradable, 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 the harmful discharge of contaminants into soil

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and water supplies, and produce greenhouse gases contributing to global climate change respectively. Special attention should be given to the handling and management of hazardous waste generated in the campus. 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.

Status of Solid Waste Generation in the campus

Each and every department of College as well as administrative offices create some waste and dumped in small waste bin located in the department. Each building several dust bins are placed from where housekeeping staffs take the wastes. From the small bin wastes are dumped in big bin by the housekeeping staffs regularly. From the big waste bins the car from Nawalgrah Municipal Corporation took the solid wastes. As tabulated below, on an average, the hostels and teacher flats/quarters account for the highest amount of solid waste generated on the campus. On average,





various stakeholders generate 434 kg of different types of solid waste per week

Solid Waste Management

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GANIRAN GANIRAN Management of solid waste is one area where all stakeholders are more-or-less aware of the issues involved. Each of these sections/ stakeholders has appropriated their own set of solid- waste management practices as per their convenience, requirements, and availability of resources. Investigations revealed that 12 Academic Departments of the College have a total of 50 numbers of indoor dustbins installed for solid-waste disposals. On an average, each of these departments has a

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provision of about 3 dustbins. At present none of the Departments had facility of segregating the waste.

Sl. No.	Stakeholders	Types of solid waste	Average waste generated /week (Kg)	% of waste
1.	ACADEMIC	Paper waste	4	9.22
2.	DEPARTMENT	Plastic waste	1.2	2.76
3.	Commission and Commission of the Commission of t	Organic Waste	3.5	8.06
4.		E-waste	0.1	0.23
5.	ADMINISTRATIVE OFFICE	Paper waste	2.0	4.61
6.		Plastic waste	0.5	1.15
7.		Organic Waste	1.0	2.30
8.		E-waste	0.1	0.23
9.	RESIDENTIAL	Paper waste	6	13.82
10.	QUARTER/HOSTELS/GUEST	Plastic waste	3	6.91
11.	HOUSE	Organic Waste	20	46.28
12.		E-waste	0.1	0.23
13.	CANTEENS	Paper waste	0.5	0.69
14.		Plastic waste	0.5	0.23
15.		Organic Waste	1.5	3.46
16.		E-waste	NII	
17.	TOTAL		44 Kg /week	100%

The teacher's quarters maintain on an average one personal dustbin for solid-wastes disposals and a pit for the dumping of organic wastes. 40% of the Academic Departments and 50% of residential quarters maintain separate disposal systems for dry and wet waste.

The practice of separating bio-degradable waste from non-biodegradable ones is prevalent in the teacher's quarters, Guest House and 20% of Academic Departments but is absent in hostels.

For all the academic departments, administrative office, residential quarter/hostels/guest house and canteens 90 % of the accumulated solid waste excluding the ones which are dumped in the pits is lifted by Nawalgarh Municipal Corporation (NMC) every two days, which is then segregated and land filled while for the rest is composted.

While the centralized system of solid-waste management involves timely and periodic lifting of the disposed of wastes by the Agartala Municipal Corporation, it is laudable that proper waste

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management including composting initiatives has been adopted. However, the need for a formal and centralized system for segregating the waste generated ought to be adopted in the College which will then followed by composting. Solid-waste recycling is not practiced in

The organic wastes filled in the pits are subjected to composting which forms a best practice in the campus. In addition to the organic waste generated from different units, large sources of organic wastes other than kitchen wastes (GBH canteen, house hold) like leave litter, terrestrialweeds etc that are generated from maintain and cleaning thecampus are collected during different periods of the year. These organic wastes are hard to degrade in the soil due to high content of lignin.





Vermicompost Unit developed by Department of Botany

Vermicomposting is the technology where with the use of locally available appropriate species of composting earthworms (Perionyx excavatus), huge amount of plant biomass produced in the University campus is reduced into available plant nutrient rich organic manure within a short time span. Thanks to Dr. Harsh Kumar and Prof. Shyama Didwania, Department of Botany who has expertise and has been working in this field since many years.

Following collection of wastes from in and around the Podar Campus, the waste resources are dumped near the vermicomposting unit (basement of car parking area). The organic wastes to be processed by earthworms are chemically analysed to know their nutrient values. All the different types of wastes are mixed throughly and precomposted for 2-3 weeks. After precomposting precomposted substrates are loaded in the cemented vermicomposting tanks ($15^{\circ} \times 1^{\circ} \times 0.75^{\circ}$). Locally available earthworms, Perionyx excavatus are then introduced in the composting tanks.

Following inoculation, the earthworms (Perionyx excavatus) through their feeding, burrowing and casting activities convert the organic wastes into manure called vermicompost within 45 days. Nutrient contents of original wastes and earthworm worked vermicompost are given i

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Table 6: Nutrient characteristics of different organic wastes

Paramete rs	С	B	A C	M C	K W
рН	7.42	6.75	6.3	7.63	10 .0
Electrical conductivity (μMho cm ⁻	580.6 6	720. 00	570.0 0	990.0 0	-
Organic Carbon (%)	17.14	19.5 2	19.83	20.37	36 .8
Total Nitrogen (%)	1.26	1.52	1.82	3.08	3. 49
Av. Phosphorus (mg 100g ⁻¹)	147.3 9	48.9 7	26.15	163.7 1	0.89 % (Total P)
Av. Potassium (mg 100g ⁻¹)	1000. 00	937. 33	1087. 00	5962. 00	2.18 % (Total K)

^{*}C = Cow dung, BC = Bamboo - cow dung, AC = Acacia - cow dung, MC = Mikania - cowdung,

KW = Kitchen waste

Table 7: Plant nutrients in vermicompost (after 45 days) derived from organic wastes of University Campus

Parameters	C	BC	AC	MC	KW
pН	6.85	7.06	6.9	6.71	7.59
Electrical conductivity (μMho cm ⁻ 1	594.33	870.00	680.66	1387.00	-
Organic Carbon (%)	11.20	17.90	14.92	17.49	10.48
Total Nitrogen (%)	1.96	2.23	2.16	3.83	1.67
Av. Phosphorus (mg 100g ⁻¹)	275.04	130.96	86.88	300.96	1.09% (Total P)
Av. Potassium (mg 100g ⁻¹)	1175.0 0	1420.0 0	1589.0 0	7321.33	0.85% (Total K)

^{*}C = Cow dung, BC = Bamboo - cow dung, AC = Acacia - cow dung, MC = Mikania - cowdung,

KW = Kitchen waste

Liquid waste management:

Liquid waste is generated from Science laboratories, Hostels, Residential quarters and canteen.

Liquid wastes generated by the College are of two types:

- 1) Sewage waste
- 2) Laboratory, residential washing and canteen effluent.

The laboratory liquid is sent to soak pit and other liquid wastes are mainly drained to improve the ground level of water. College does not have any sewage treatment plant yet.

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Biomedical waste management:

In Seth Gyaniram Bansidhar Podar College only few faculties use animal for their research purpose from where some biomedical waste is produced. Though the amount of waste is very negligible amount still the carcass of the animals are stored in the -20 oC for the time being. After sufficient amount of carcass stored university hand over to Nawalgarh Municipal Corporation for Biomedical waste management.

E-waste management

Seth Gyaniram Bansidhar Podar College has very efficient mechanism to dispose E wastes generated from various sources. E-wastes are generated from computer laboratories, electronic labs, Physics Labs, Chemistry Lab, Biotech Labs, Academic and Administrative Offices.

The e-waste includes out of order equipment's or obsolete items like lab instruments, circuits, desktops, laptops and accessories, printer, charging and network cables, Wi-fi devices, cartridges, sound systems, display units, UPS, Biometric Machine, scientific instruments etc. All these wastes are put to optimal use. All such equipment's which cannot be reused or recycled is being disposed of through authorized vendors. Instead of a new procurement Buy- Back option is preferred for technology up gradation.

Hazardous Waste

In India, the Ministry of Environment, Forest and Climate Change, Government of India; is the agency to promulgate the Hazardous Waste (Management and Handling) Rules, 1989, under the provision of the Environment Protection Act, 1986. These rules were amended and new rules entitled "Hazardous waste (Management, Handling, and Trans-boundary Movement) Rules, 2008" were promulgated, which was further amended in the years 2009 & 2010 for proper management and handling of hazardous waste in the country (CPCB, 2010-2011). These regulations sometimes require detailed knowledge of the constituents and properties of waste streams so they can be managed properly.

Seth Gyaniram Bansidhar Podar College, like other entities that generate and manage hazardous wastes, is faced with a range of problems. The following features create hazardous waste management problems unique to the College.

 Most departments do not generate large quantities of hazardous waste and can be classified as conditionally exempt small quantity generators (generators of less than 100 grams of hazardous waste per month)

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- Stakeholders are not adequately aware of the regulations that may apply to them, or they may have chosen to ignore the regulations, believing they do not have to comply.
- 3) During the study it was noticed among the faculty members of Seth Gyaniram Bansidhar Podar College by the Green Audit Committee, that majority of the stakeholders (> 90%) were confident about their understanding of hazardous waste and their obligation in disposing of materials.

Ideally, Handling, collection, and transportation and proper handling of chemicals begin with understanding the potential hazards related to their use. All stakeholders, especially from Academic Departments and laboratories should be responsible for disseminating information on hazardous materials being used in the facility. The dissemination of information can involve discussions on reactivity and possible health effects.

The survey carried out by Seth Gyaniram Bansidhar Podar College Green Audit Committee revealed that despite having an understanding of hazardous waste; a majority of the respondents were uncertain of disposal of hazardous waste. Many respondents were not aware of the green initiatives which can be taken to manage hazardous waste.

It is evident that hazardous wastes which though is generated in very small quantity requires transportation off the College property, to an approved treatment facility. It is evident that there is no collection and management of waste across the campus, but improvements in the overall liquid waste is required to manage the handling and transportation of the generated waste to a treatment facility off the campus.

The College faces several obstacles to ensuring the disposal of hazardous wastes in an appropriate manner. These include the need for funds to pay for an outside handler and on-site coordinator to manage the waste management program. The large variety and small quantities of wastes produced by the Academic Departments and the residential is also a manner of concern. Data from the survey indicates that household batteries such as alkaline batteries were most frequently disposed of as compared to household and office cleaners such as tiles and floor cleaners, pesticides, wood preservatives such as varnishes and paint products which are disposed in very low quantity. Caution must be taken while moving hazardous waste materials through campuses along public streets.

Observations

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GANIRAN GANATA Disposal of biomedical waste generated in the Seth Gyaniram Bansidhar Podar College laboratories is not streamlined.

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The liquid hazardous waste generated in the laboratories required transportation to off campus disposal facility.

Suggestions and Recommendation\

- The Seth Gyaniram Bansidhar Podar College campus is to be declared as a plastic-free campus.
- The practice of using biodegradable materials should be encouraged as alternatives.
- Vermi-composting facilities could be expanded.
- A centralized system of recycling paper could be adopted.
- The incinerator can be installed in the campus.

Health audit

In order to encourage students to respect the environment and think about conservation, altogether Environmental Awareness/Plantation Programmes organized during 2019-2020. World Environment Day was celebrated by Different Academic Departments with their students.

Seth Gyaniram Bansidhar Podar College took initiative for "Swachhhta Pakhwada," which was observed from 1th to 15th September, 2019 following the letter vide letter F.No.11014/01/2018-(EBSB), dated 27th August, 2019 from the Ministry of Human Resource Development, Department of Higher Education, New Delhi. Under the Banner, in Seth Gyaniram Bansidhar Podar College, following activities were undertaken from 5th of September to 27th of September, 2019 and continue every year by NCC Units of the college.. It was conducted with the support of NSS Unit and Administrative and Academic staffs from different departments of Seth Gyaniram Bansidhar Podar College.

Energy audit

According to Energy Conservation Act, 2001, Energy Audit is the verification, monitoring, and analysis of the use of energy including submission of a technical report containing recommendations for improving energy efficiency with cost-benefit analysis and an action plan to reduce energy consumption.

The Energy and electricity audit aimed to cover the aggregate consumption of Electrical and Natural gas energy within the Seth Gyaniram Bansidhar Podar College campus including academic and administrative blocks. In different hostels, LPG cylinders are primarily used for cooking purposes and the number of uses was also counted. Domestic LPG connections were not included in the present study. Within the campus, no other fossil fuel like coal-fire or firewood, etc based energy is used.

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All the buildings of the College are designed and constructed in such a way that during day time no electricity is consumed for lighting of tube lights and other electric lights. Proper day light and ventilation facilities are available for every building.

Moreover, Seth Gyaniram Bansidhar Podar College is taking its initiative to utilize renewable energy has installed roof top solar panels of capacity 50 KWp in 2 buildings to compensate for the necessity of electrical energy within the campus. This has resulted tremendous curtailment in the electricity consumption. Seth Gyaniram Bansidhar Podar College has saved a substantial amount Rs. 1,57,087/for the period of almost 2 years i.e., from January, 2020 to December, 2021.



Observations

Separate Electricity meters were not found in the Hostels, Academic, and administrative blocks.

Suggestions and Recommendations

- There should be facility to record energy consumption in every building.
- Solar power generated roadside poles can be installed.
- Solar power can be augmented in coming years.
- Regular Campaigns should be done to switch off of lights and other electric appliances after use.

Environmental quality audit Air quality assessment

For air quality monitoring three parameters namely Particulate Matter (PM 10), Sulphur dioxide (SO2), and nitrogen dioxide (NO2) were considered for measurement in the University campus. PM10 is suspended particulate matter, either solid or liquid, with a diameter of 10 micrometers or less, including smoke, dust, soot, salts, acids, and metals. Particulate matter can also be formed indirectly when gases emitted from motor vehicles and industries undergo chemical reactions in the atmosphere.

The air quality monitoring station was set up on the roof of the Laboratory of Chemistry building at

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the College premises. Logistic considerations as easy accessibility, security, availability of reliable power supply etc. were examined before finalizing the locations. The air quality monitoring was conducted for 24 hour schedule in three shifts (8 hourly duration) at the monitoring station. The sampling procedures for measurement of PM2.5, PM10, NO2 and SO2 were made according to the internationally accepted standard technique through use of Respirable Dust Sampler (RDS) with gaseous sampling attachments and PM2.5 Sampler manufactured by M/s Environtech Instruments PVT. LTD., New Delhi.

The Particulate matter PM10 was observed to be $58.7~\mu g/m3$ and PM2.5 was observed to be $48.93~\mu g/m3$ Table 8, in the Seth Gyaniram Bansidhar Podar College campus which is lower than the permissible limits of CPCB Ambient Air Quality Standards of $100~\mu g/m3$ and $60~\mu g/m3$, respectively. In the College Campus, the major source of PM10 and PM2.5 might be the dust from Vehicular traffic, construction, and burning.

SO2 is the component of greatest concern and is used as the indicator for the larger group of gaseous sulphur oxides (SOx). In the College Campus, the SO2 concentration was observed to be $1.14~\mu g/m3$. This is much below the CPCB permissible limit of 80 $\mu g/m3$. So, the College campus can be called a zone which does not have SO2 pollution. Moreover, the good luxuriant vegetation which is present in the university campus also contributes a lot to the absorption of SO2 by plants.

NO2 is the most prevalent form of NOx in the atmosphere which is generated from different anthropogenic (human) activities. NO2 is not only an important air pollutant by itself but also reacts in the atmosphere to form ozone (O3) and acid rain. In the University campus, the NO2 was observed to be 5.08 μ g/m3. This is much below the CPCB ambient air Quality permissible limit of 80 μ g/m3. From the result in Tables was observed that the value of PM2.5, PM10, NO2 and SO2 of air inside the Seth Gyaniram Bansidhar Podar College campus are within the prescribed standard limit of CPCB (Central Pollution Control Board, 2009).

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Table: Status of ambient air quality in the campus of Seth Gyaniram Bansidhar Podar College

Pollutants	Time weighted Average	S-1	Standards (CPCB, 2009)	MethodUsed
Particulate matter (PM10) μg/m ³	24 Hours	58.7	100	Gravimetric
Particulate Matter (PM2.5) μg/m ³	24 Hours	48.93	60	Gravimetric
Sulphur Dioxide (SO2) µg/m ³	24 Hours	1.14	80	Improved Westand Geake
Nitrogen Dioxide (NO2) μg/m ³	24 Hours	5.08	80	Jacob & Hochheiser

In indoor environments people require fresh air because people spent most of the time inside the dwelling (Lingnel 2008, Ayanbimpe et al. 2010). According to Chadeganipour et al. (2010), all atmospheric air, whether indoor or outdoor, contains certain varieties of some fungal spores. Generally, outdoor air is the dominant source of indoor fungi (Shelton et al. 2002). Fungal spore concentration in outdoor environments consistently differs from indoor environments. Many aerobiological studies have been conducted for airborne fungal spores (Khandelwal 2008) but mainly from outdoor environments (Almina et al. 2019) but indoor environments are equally important because people spend most of their time indoor, punctuated by physicians (Portnoy et al. 2005). Nowadays fungal allergy is very common to people mainly those who spend most of the time indoor but it is difficult for diagnosis from the other type allergy due to fungi which are many and antigenically variable than the other allergens. The assessment of airborne fungal concentration was performed by Prof. Ajay Krishna Saha and his team of Scholars (Karmakar et al 2020) using sedimentation plate technique. Saboraud Dextrose Agar (SDA), Czapek-Dox Agar (CDA), Potato Dextrose Agar (PDA) and Malt Extract Agar (MEA) was prepared. The plates were exposed in indoor and outdoor environments of the Library, Canteen, Newly Constructed Building and Class Room. These plates were exposed for 5 minutes during the time in between hour 11 am to 5 pm after

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which they are sealed, labeled and transported to the laboratory. The culture plates were incubated at room temperatures (25°C) until growth appeared. Isolates were identified based on the standard texts and keys (Ellis 1971, Domsch et al. 1980, Watanabe 2002).

A total of 132 colonies (Table 9) were found comprising of 18 genera. The dominant fungal genera were Alternaria sp. (9.85%), Aspergillus sp (43.18%), Cladosporium sp (7.58%), Curvularia sp (3.03%), Fusarium sp (6.06%), Penicillium sp (18.18%) and Trichoderma sp (3.79%).

In this present study it was found that the number of fungal isolate was maximum in outdoor (68) Compare than indoor (64) in Table 9. Aspergillus sp., Penicillium sp., Alternaria sp. Cladosporium sp., Fusarium sp. Were isolated both from indoor and outdoor environments. Phoma sp., Torula sp., Nigrospora sp., Geotrichum sp. and Unidentified sp. (1) were isolated from indoorenvironments. Monilia sp., Rhizopus sp., Pythium sp., Acremonium sp., Unidentified sp. (2), Unidentified sp. (3) and Trichoderma sp. were isolated from outdoor environments. The no. of isolated fungal genera highest in M.Sc. classroom (indoor-outdoor=41) and lowest in Library (indoor-outdoor=26). The highest concentration of fungi observed in July and August.

Table Percentage of fungal isolate from indoor and outside environment in Campus

-	C	R	I		C	0	NC	В	1		0		T	Grand
Fungal genera	I	0	1	0	1	0	I	0	Total Isolate	Total	Total Isolate	Total	Total Isolate	Total
Acremonium sp	0	0	0	0	0	0	0	1	0	0.00	1	1.47	1	0.76
Alternaria sp	3	4	3	3	0	0	0	0	6	9.38	7	10.29	13	9.85
Aspergillus sp	5	5	7	6	10	5	12	7	34	53.13	23	33.82	57	43.18
Cladosporium sp	0	0	0	0	1	4	2	3	3	4.69	7	10.29	10	7.58
Curvularia sp	3	0	1	0	0	0	0	0	4	6.25	0	0.00	4	3.03
Fusartum sp	4	1	0	0	1	2	0	0	5	7.81	3	4.41	8	6.06
Montha sp	0	1	0	0	0	0	0	0	0	0.00	1	1.47	1	0.76
Nigrospora sp	0	0	0	0	0	0	1	0	1	1.56	0	0.00	1	0.76
Georrichum sp	0	0	0	0	1	0	0	0	1	1.56	0	0.00	-1	0.76
Penicillium sp	1	9	2	4	0	0	4	4	7	10.94	17	25.00	24	18.18
Phoma sp	0	0	0	0	1	0	0	0	1	1.56	0	0.00	1	0.76
Pythium sp	0	1	0	0	0	0	0	0	0	0.00	1	1.47	1	0.76
Rhtzopus sp	0	1	0	0	0	0	0	0	0	0.00	1	1.47	1	0.76
Tornla sp	1	0	0	0	0	0	0	0	1	1.56	0	0.00	1	0.76
Trichoderma sp	0	2	0	0	0	3	0	0	0	0.00	5	7.35	5	3.79
Unidentified sp. 1	0	0	0	0	1	0	0	0	1	1.56	0	0.00	1	0.76
Unidentified sp. 2	0	0	0	0	0	0	0	1	0	0.00	1	1.47	1	0.76
Unidentified sp. 3	0	0	0	0	0	0	0	1	0	0.00	1	1.47	1	0.76
Total Isolates	17	24	13	13	15	14	19	17	64		68		132	-

Note: I= Indoor: O= Outdoor: CR- Classroom: L- Library: C- Canteen: NCB- Newly Constructed Building

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It was concluded that proper and periodic maintenance of working environments involving frequent cleaning, disposal of accumulated wastes, setting up of modern infrastructure facilities, application of fumigants/fungicides and use of dust masks while working can certainly help to improve the air quality and reduce the allergic incidence to people who work in such environments.

The knowledge of the atmospheric pollen presence found in different regions is of great interest for clinicians and allergic patients (Kobzar, 1999). Although the atmosphere consists of a large number of pollen grains, only a few of them are responsible for allergic manifestations (Singh and Kumar, 2004). The composition of airborne pollen in a specific region depends on its characteristic vegetation and meteorological conditions (Gracia-Mozo et al 2006; Latorre, 1999). A study was carried out by Prof. Badal K Datta and his team, from the Department of Botany revealed that the pollen grains of 43 types belonging to 29 families were identified from the atmosphere of Seth Gyaniram Bansidhar Podar College Campus of which 10 are well known allergens. On the basis of pollen concentration in the air, it was noticed that maximum number of pollen grains was found in March-April (184 and 218) and minimum in July and September. Cyperaceae, Poaceae, Eucalyptus globulus and Lantana camara pollens were recorded almost throughout the year. Pollen of Acacia auriculiformis, Coccinia grandis, Flacourtia jangomus, Tectona grandis, and Oldenlandia sp. were present only in spring in very low concentration. Pollen of Amaranthus/ Chenopodium was trapped in very lower amounts throughout the year.

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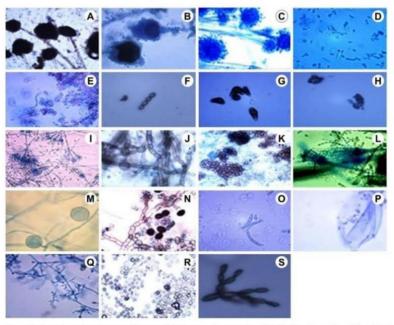


Fig. Air-fungal species from outdoor and indoor environments of Seth Gyaniram Bansidhar Podar College: A-C, Aspergillus sp.; D, Geotrichum sp.; E, Cladosporium sp.; F, Torula sp.; G, Curvularia sp.; H, Alternaria sp.; I, Penicillium sp.; J, Phoma sp.; K, Acremonium sp.; L, Unidentified sp. 1; M, Pythium sp.; N, Nigrospora sp.; O, Fusarium sp.; P, Rhizopus sp.; Q, Trichoderma sp.; R, Unidentified sp. 2; S, Monilia sp.

Vehicular movements

It was estimated that on an average around 400 nos. of two wheelers and 110 nos of four- wheeler vehicles (including vehicles coming to Bank & Post Office) visited Seth Gyaniram Bansidhar Podar College Campus in general days per month during 2019-20 excluding the vehicles of campus dwellers. The Seth Gyaniram Bansidhar Podar College has two designated parking places. Except 30 percent of the vehicles, rest are visiting for a while.

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Ambient Noise Levels

Under the Air (Prevention and Control of Pollution) Act, 1981, noise is regarded as a pollutant. There are two major settings where noise mostly occurs; these are - community noise and industrial noise. Community noise is also called environmental noise and is defined as the noise emitted from all the sources except the noise from the industrial sources. As far as community noise is concerned the WHO guidelines recommend less than 30 dB(A) in bedrooms during the night which is essential for good quality sleep. Again, it should be less than 35 dB(A) in classrooms which is important for good teaching and learning conditions.

The noise level monitoring was carried out to assess the equivalent noise level (Leq) around the Seth Gyaniram Bansidhar Podar College campus both in the day time and night time. Sound Level Meters CR: 1710 (Class-I) was used for monitoring of noise levels. The noise levels were monitored at least for 20 minutes at each location. The noise monitoring was carried out at the 4 (Four locations inside the College campus.

Sl. No.	Location	Measured Noise Level at Day Time Leq dB(A)	Standard at Day Time for Sensitive Zone Leq dB(A)	Measured Noise level atDay Time Leq dB(A)	Standar d at Night Timefor Sensitive Zone Leq dB(A)
1	ResidentialComplex	48.3	50	39.7	40
2	PG Boy'sHostel	49.3	50	38.7	40
3	In Frontof Geography Department	48.5	50	33.7	40
4	Near Administrative Building-1	51.3	50	41.7	40
5	Near Administrative Building-2	62.5		31.3	
6	PG Girl'sHostel	40.9	50	41.6	40
7	In Front of Library	55.5	50	44.6	40

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However, it is important to note that the average noise level, considering all sampling stations within the campus, was higher than the maximum permissible limit of 50db(A) as recommended by the CPCB for all the location nearing the boundary. Although the Leq levels are high outside the atmosphere of the classrooms are quite calm and should be below the WHO recommended value of 35 dB(A) which is suitable for classroom teaching-learning environment.

Observations

- . It is estimated that > 60 percent of campus dwellers walk within the campus.
- Noise is a disturbing factor on campus, particularly along the national highway, and within the campus during all India Examinations and Admission periods.

Suggestions and Recommendations

- · Students and staff should be encouraged to use bicycle.
- · The vehicular account should be maintained for the campus dwellers and staff members.
- · Noise attenuation has to be done by planting vegetation around buildings.
- Govt. authorities are requested to monitor the use of loudspeaker and noise producing sources
 within the 100 m radius outside the College campus in compliance with prescribed rules.

Biodiversity Audit

Biodiversity audit of Seth Gyaniram Bansidhar Podar College is a continuous process and efforts of the faculty members, researchers, and the students to assess the living biota and its conservation have been going on for many years. Regularly many conservation practices are taken up by the College so that anthropogenic impact on the biodiversity components and ecosystems are minimized. The scientific information and existing database are based on various studies as well as research work done by Botany and Zoology departments of Seth Gyaniram Bansidhar Podar College. Despite various limitations, data have been compiled to prepare authentic documentation that provides an insight into the status of the biodiversity and natural ecosystem in the campus. Different conservation practices also have been applied for a better and sustainable campus ecosystem. The main objective of biodiversity audit is to provide documentation of biodiversity components within the institutional area, to observe ecosystem structures and functions along with regular biodiversity monitoring of the different components of biodiversity.

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FLORA OF THE CAMPUS							
SR. No.	VERNACULAR NAME/BOTANICAL NAME	FAMILY	NO. OF PLANTS				
1	GUDHAL MALVACEAE Hibiscus rosa sinensis		8				
2	AMRUD Psidium guajava	MYRTACEAE	2				
3	SNAKE PLANT Dracena trifasciata	ASPARAGACEAE	55				
4	CYCAS Cycas revoluta	GYMNOSPERM	3				
5	GREEN DEVIL Pedilanthus tithymaloides	EUPHORBIACEAE	2				
6	ARROWHEAD PLANT Syngonium podophyllum	ARACEAE	2				
7	FLAPJACKS Kalanchoe thyrsiflora	FLAPJACKS CRASSULACEAE					
8	ASHOK Polyalthia longifolia	ANNONACEAE	45				
9	DEVIL'S BACKBONE Euphorbia tithymaloides	EUPHORBIACEAE	4				
10	CENTURY PLANT Agava americana	ASPARAGACEAE	4				
11	VENEZUELAN TREEBINE Cissus Rotundifolia	VITACEAE	4				
12	ASPARAGUS FERN Asparagus densiflorus	ASPARAGACEAE	2				
13	BRYOPHYLLUM Kalanchoe pinnata	BRYOPHYLLUM CRASSULACEAE					
14	CYLINDRICAL SNAKE PLANT Sensevieria cylindrica	ASPARAGACEAE	20				
15	DATE PALM Phoenix dactylifera	ARECACEAE	2				
16	MANGROVE FAN PALM <i>Licuala spinosa</i>	ARACEAE	2				
17.	KELI Gladiolus Spp.	IRIDACEAE	4				
18.	ZEBRA PLANT Haworthia fasciata	LILIACEAE	2				
19.	ELEPHANT FOOT Beaucarnea recurvata	LILIACEAE	5				
20.	CHIKOO Manikara zapota	SAPOTACEAE	2				
21.	LALPATÂ Euphorbia pulcherrhima	EUPHORBIACEAE	2				
22.	JAVA PLUM or JAMUM	MYRTACEAE	1				

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	Syzygium cumini		
23.	SHEESHAM	FABACEAE	3
	Delbergia sisoo		
24.	YELLOW OLEANDER (Kaner)	APOCYNACEAE	2
	Cascabela thevatia		
25.	MONEY PLANT	ARACEAE	7
	Epipremnum aureum		
26.	NAGFANI	CACTACEAE	35
	Opuntia ficus-indica		
27.	JADE PLANT	CRASSULACEAE	2
	Crassula ovata		
28.	ALOE (GWARPATHA)	ASPHODELACEAE	4
	Aloe vera		
29.	AMLA (Indian gooseberry)	PHYLLANTHACEAE	3
	Phyllanthus emblica Linn		
30.	FAN PALM	ARECACEAE	2
	Washingtonia filifera		
31.	ROSE	ROSACEAE	40
	Rosa indica		
32.	GULDAUDI or mums	ASTERACEAE	24
	Chrysanthemum spp.		
33.	GENDA (marigold)	ASTERACEAE	60
	Tagetes patula		
34.	MORPHANKHI	CUPRESSACEAE	3
	Тһија ѕрр.		
35.	BEEL PATRA	RUTACEAE	2
	Aegle marmalos		
36.	ANAR	LYTHRACEAE	1
	Punica granatum		
37.	APPLE	ROSACEAE	1
	Pyrus malus		
88.	DANDA THOR	CACTACEAE	2
	Cereus jamacara		
39.	SPIDER LILY	ASPARAGACEAE	1
	Crinum asiatica		
10.	CHRISTMAS TREE	ARAUCARIACEAE	5
	Araucaria columnaris		
11.	BOUGAINVILLEA	NYCTAGINACEAE	35
	Bougainvillea glabra		
12.	LOTUS	NELUMBONACEAE	1
	Nelumbo nucifera		
13.	BURGAD	MORACEAE	1
	Ficus bengalensis		
14.	KARONDA	APOCYNACEAE	1
	Carissa carandas		
45.	KOCHIA	AMARANTHACEAE	1
	Bassia scoparia		

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46.	BOTTLE PALM Hyophorbe lagenicaulis	ARACEAE	2
47.	NEEM Azadirachta indica	MELIACEAE	5
48.	FISHTAIL PALM Caryota mitis	ARECACEAE	2
49.	PIPAL Ficus religiosa	MORACEAE	2
50.	KHEJRI Prosopis cineraria	FABACEAE	4

BIRDS LIST OF SETH G B SETH GYANIRAM BANSIDHAR PODAR COLLEGE, NAWALGARH CAMPUS

(DEPARTMENT OF ZOOLOGY)

Family & Species no.	Scientific Name	English Name	IUCN	Status	Guild
Accipitridae					
1	Milvus migrans	Black kite	С	R	Carnivorous
2	Elanus caeruleus	Black- shouldered kite	LC	R	Omnivorous
Alaudidae					
3	Eremopterix grisea	Ashy- crowned sparrow lark	LC	v	Omnivorous
Alcedinidae					
4	Halcyon smyrnensis	Whiteethroat ed kingfisher	LC	R	Carnivorous

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Apodidae	1 1				
5	Apus affinis	House swift	LC	R	Insectivorous
Ardeidae					
6	Bubulcus ibis	Cattle egret	LC	R	Camivorous
Bucerotidae					
7	Ocyceros birostris	Indian gray hornbill	LC	R	Omnivorous
Columbidae					
8	Streptopelia tranqueba	Red collared- Dove	LC	R	Granivorous
9	Streptopelia senegalen.	Laughing dove	LC	R	Granivorous
10	Streptopelia decaocto	Eurasian collared- dove	LC	R	Granivorous
11	Columba livia	Rock pigeon	LC	R	Granivorous
12	Treron phoenicoptera	Yellow- footed Green Pigeon	LC	R	Frugivorous
Coraciidae					
13	Coracias benghalensis	Indian roller	LC	R	Carnivorous
Corvidae					
14	Corvus splendens	House crow	LC	R	Carnivorous
15	Dendrocitta vagabunda	Rufous treepie	LC	R	Frugivorous

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Cuculidae	1 1		1		Î
16	Eudynamys scolopaced	Asian koel	LC	R	Omnivorous
17	Clamator jacobinus	Pied cuckoo	LC	sv	Omnivorous
Dicruridae					
18	Dicrurus macrocercus	Black drongo	LC	R	Insectivorous
Estrildidae					
19	Lonchura malabarica	Indian silver bill	LC	R	Omnivorous
Laniidae					
20	Lanius schach	Long-tailed shrike	LC	R	Insectivorous
Meropidae					
21	Merops orientalis	Green bee- eater	LC	R	Insectivorous
Motacillidae					
22	Motacilla alba	White wagtail	LC	v	Insectivorous
23	Motacilla flava	Yellow wagtail	LC	wv	Insectivorous
24	Anthus hodgsoni	Indian tree pipit	LC	wv	Insectivorous
Muscicapidae					
25	Turdoides malcolmi	Large gray babbler	LC	R	Insectivorous
26	Monticola solitaries	Blue rock thrush	LC	wv	Omnivorous

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Nectariniidae					T
27	Nectarinia asiatica	Purple sunbird	LC	R	Nectarivorous
Oriolidae					
28	Oriolus oriolus	Eurasian golden oriole	LC	sv	Omnivorous
Passeridae					
29	Passer domesticus	House sparrow	LC	R	Granivorous
Phasianidae					
30	Pavo cristatus	India n peafowl	LC	R	Omnivorous
31	Francolinus francolinu	Black francolin	LC	R	Omnivorous
Picidae					
32	Dendrocopos mahratte	Yellow- crowned woodpecker	LC	R	Insectivorous
Ploceidae					
33	Ploceus philippinus	Baya weaver	LC	R	Omnivorous
Psittacidae					
34	Psittacula krameri	Rose-ringed parakeet	LC	R	Granivorous
Pycnonotidae					
35	Pycnonotus cafer	Red-vented Bulbul	LC	R	Frugivorous
Strigidae					

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36	Athene brama	Spotted owlet	LC	R	Insectivorous
Sturnidae					
34	Acridotheres ginginian	Bank myna	LC	R	Granivorous
38	Acridotheres tristis	Common myna	LC	R	Granivorous
39	Sturnus pagodarum	Brahminy starling	LC	R	Granivorous
40	Sturnus contra	Asian pied starling	LC	R	Granivorous
41	Sturnus roseus	Rosy starling	LC	wv	Granivorous
Turdinae					1
42	Saxicoloides fulicata	Indian robin	LC	R	Insectivorous
43	Saxicola insignis	Common stonechat	LC	wv	Insectivorous
44	Oenanthe picata	Variable	LC	WV	Insectivorous
Upupidae		wheatear			
45	Upupa epops	Common hoopoe	LC	R	Insectivorous



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