GREEN AUDIT REPORT

OF

SHRI RAM COLLEGE

(Shri Ram Group of Colleges)
Muzaffarnagar

Year 2020-21

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Shri Ram College, Muzaffarnagar

Green Audit Committee

EXTERNAL AUDITORS

S.NO.	Committee Member	Designation
1	Dr. Sanjay Kalia, Scientist 'E', DBT-India, New Delhi	Chairman
2	Prof. (Dr.) Vijay Kumar, Head, Department of Botany, CCS University, Meerut	Secretary
3	Dr. Ashok Kumar Jain, Retd. Professor, Deptt. of Botany, SD Degree College, Muzaffarnagar	Member

INTERNAL AUDITORS

S.NO.	Committee Member	Designation
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2	Dr. Reetu Pundir, Assistant Professor, Deptt. of Basic Sciences, Shri Ram College	Member
3	Mr. Vikas Kumar, Assistant Professor, Faculty of Bio-Science, Shri Ram College	Member
4	Mr. Ankit Dhariwal, Assistant Professor, Faculty of Bio-Science, Shri Ram College	Member

Green Audit Report

Shri Ram College, Muzaffarnagar

Contents

Preamble

Environmental degradation is occurring at a rapid rate on a local, regional,

and global scale, leading to global "Environmental Poverty." Stabilization of the human population, adoption of environmentally sound and sustainable technologies, reforestation, and ecological restoration are all critical components in ensuring an equitable and sustainable future for all people in harmony with nature. As a result, academic leaders must lead and support the mobilisation of internal and external resources and knowledge in order for their institution to respond to environmental challenges.

Shri Ram College, Muzaffarnagar is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reserves the trends. We deeply subscribe to the fact that humans should be steward of Mother Nature and that we all have a profound responsibility to protect the earth‟s resources in perpetuity. Being a premier institute of higher learning, Shri Ram College, Muzaffarnagar has resolved to play a major role in the education, research, policy formation, and information exchange necessary for a sustained environmental campaign.

The current Green Audit represents our efforts to make the SRC campus more environmentally sustainable. Our goal was to keep the auditor's report as honest and open as possible. That's why we'd also invited External Auditors. A group of eminent scientists and researchers conducted the audit. Dr. Sanjay Kalia, Scientist 'E', DBT-India, New Delhi, led the external auditors, which included Prof. (Dr.) Vijay Kumar, Head, Department of Botany, CCS University, Meerut, and Dr. Ashok Kumar Jain, Retd. Professor, Department of Botany, SD Degree College, Muzaffarnagar. The Internal Auditors included Dr. Sourabh Jain (Associate Professor and Head, Faculty of Bioscience), Dr. Reetu Pundir (Assistant

Professor, Department of Basic Science), Mr. Vikas Kumar and Mr. Ankit Kumar (Assistant Professor, Faculty of Bioscience). We have conducted this audit for the college to create awareness not only among the students, but also in the staff and stakeholders about engagement in eco- friendly activities. We wish to make these activities as a regular part of functioning.

The overall goals of this audit were:

- To introduce students to real concern of environment and its sustainability using the Shri Ram College, Muzaffarnagar Campus as a study site.
- To analyze the pattern and extent of resources use on the campus.
- To make the college a more environmentally sustainable institution of higher learning.
- To bring out a status report on Green compliance.

Summing up, in light of above mentioned goals, we are pleased to submit this Green Audit Report.

Preface

The concept of "GREEN CAMPUS INITIATIVE" was put forth by Hon. Dr. Subhash Chandra Kulshreshtha, Founder Chairman, Shri Ram Group of Colleges, Muzaffarnagar. Thereafter, the college management decided to pursue this initiative.

Concept of green campus is not limited to the decorating the college campus but also corporate responsibility, with quality education keep college environment eco-friendly with its facilities. Therefore, attempt has been made on that direction by landscaping and plantation, solid waste management, recycling of waste water, conservation of energy, water conservation, rainwater harvesting and minimum usage of paper.

We tried to inculcate value of surrounding environment amongs the students through Environmental awareness activities like nature club, NSS, Cycle Day, No Vehicle Day Celebration, World Water Day, World Environment Day, Plantation Drives, Quiz Competition on Environment, Organic Farming and Vermicomposting Courses and activity like Best out of Waste competition.

Because of the greenery and eco-friendly sustainable environment, college campus becomes more charming, refreshing and healthier. This increases efficiency of every element of the college.

"A little effort towards saving the environment is better than no effort"

Acknowledgement

We take this opportunity to express our gratitude towards the Chairman of the Institute, Hon. Dr. S.C Kulshreshtha and all Hon. Members of the Management Committee of the college for their valuable guidance, continuous encouragement, generous gift of time with constructive criticism & suggestion during the composition of work of entire " Green Audit Report-2019 – 2020".

We also express our deep sense of gratitude to our Principal Dr. Aditya Gautam and Internal Quality Assurance Cell (IQAC) co- ordinator Dr. Vinit Kumar Sharma who inspired and encouraged us throughout the work. We great fully acknowledge the help provided by him on several occasions.

It is right time to express our deep sense of gratitude to faculties of our sister institutes especially Dr. Alok Gupta, Director, SRGC (IC), Dr. Ashwani Kumar, Principal, SRP, Dr. Manoj Dhiman, Director, SRGC, Dr. Samrat Singh, Director, IIMT, Saharanpur, Dr. Narendra Sharma, Director, CHSCM, Khurja for their continuous help, inspiring resoluteness and sensible suggestion without any reservation whenever we approached throughout investigation. We are also thankful to Dr. Girendra Kumar Gautam, Director, Shri Ram College of Pharmacy and Dr. Prerna Mittal, Vice Principal, SRC for their valuable guidance.

We are equally thankful to our colleagues teachers and students of B.Sc. (Biotechnology) and B.Sc. (Microbiology) – Zoya, Shraddha, Ritu, Shilpa, Nadir, Ajay Kumar, Tejasvini whichhelps during data collection and identification of plants.

Green Audit Committee

Principal's Message

I send my best wishes for the success of the 'Green Audit 2019-2020' publication. SRC is one of the few spiritual educational campuses with high-quality education and a focus on environmental awareness and cultural development, as good

environmental sense is a fundamental feature of Indian ancient philosophy.

The efforts made by our institution and sister institutions in the SRGC integrated campus for environmental protection and biodiversity conservation are truly unique, and they may become a pilot project that sends a message about how to avoid natural disasters such as global warming and land sliding in the future.

Landscape and plantation, rainwater harvesting, solid waste management, sewage treatment plant, energy conservation, e-waste management, and paperless technology are some of the ways we try to keep the environment eco-friendly.The ultimate aim of our institution is to develop youth as fertile probe who understand for their social responsibilities.

I express my hearty wishes for success of this movement of Green Audit Report for the new beginning of the conservation from the doorstep of the people.

Our green audit reflects assessment and achievement of vision and mission of the college.

(Dr Aditya Gautam)
Principal, SRC

Summary to be execution

The rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institute which will lead for sustainable development. Shri Ram College is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reverse the trends. Being a premier institution of

higher learning, the college has started 'Green Campus Initiative' which promoted various environmental friendly practices in combination with curricular education for sustainable and eco-friendly aura in the campus.

The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The methodology include: preparation and filling up of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. It works on the several facets of 'Green Campus' including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity. With this in mind, the specific objectives of the audit are to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the Departments are in compliance with the applicable regulations, policies and standards. It can make a tremendous impact on student health and learning college operational costs and the environment. The criteria, methods and recommendations used in the audit were based on the identified risks. The area of the college premises is 25 acres out of which 'Green Cover' is approx. 19 acre. The tree census was carried out by NSS volunteers along with Green Assessment Committee.

In the present audit report, most of the aspects are covered such as tree plantation, awareness about environment programme evaluated by experts. Green campus is the motto of our college and the college has already taken some steps to protect the environment with help of college staff and students under the guidance of Principal Dr. Aditya Gautam, Shri Ram College, Muzaffarnagar.

Introduction

The term "green audit" refers to the systematic identification, quantification, recording, reporting, and analysis of environmental diversity components. The goal of the 'Green Audit' is to examine environmental practises both on and off the college campus that have an impact on the environment. It was established with the goal of inspecting the work done within organisations whose activities could endanger the health of residents and the environment. Green Audit provides direction on how to improve the state of the environment, and there are several factors that have influenced the growth of Green Audit.Green audit is assigned to the criteria 7 of NAAC, National Assessment and Accreditation Council which is a self governing organization of India which declares the institutions as Grade A, B or C according to the scores assigned during the accreditation.

About the College

Shri Ram College, Muzaffarnagar, Uttar Pradesh is a NAAC (A) Grade, 18 years young college having 10 Departments/Faculties with 14 UG and 6 PG courses of various streams. The college is located on a beautiful campus of 25 acres. There are separate laboratories of Chemistry, Botany, Zoology, Biotechnology, Computer Science, Physics, Electronics, Agriculture, Microbiology, Fine Arts and News Studio etc.

The goal is to reduce CO_2 emission, energy and water use, while creating an atmosphere where students can learn and be healthy. The 'Green Campus Inititative' has been active since last few years both as an assembly group of sub committees that actively promote the various projects. The college administration works on the several facets of 'Green Campus' including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity. College has won the Award for Green Campus also. **'Green Campus Award'** of Himalayan Action

Research & Development was given to Shri Ram Colleges by Shri Nitya Nad, Chief Minister of Uttarakhand.

In addition, the college has implemented 'Green Campus Initiatives' for environmental conservation and sustainability. There are three main pillars: zero environmental footprint, positive impact on occupant health and performance, and 100% graduates demonstrating environmental literacy.

The uniqueness of SRGC Campus is that it demonstrates respect for environment and stewardship of natural resources while ensuring the quality of life on the campus. The Master Plan of the Institution has been designed to ensure and sustain a harmonious blend of human and environmental well-being. The Institution has undertaken various initiatives to setting up an Eco-Friendly campus:

Conservation of biodiversity: . In its endeavour for conservation of healthy ecosystems, the Institution has embarked on a plantation drive spread over its campus. The variegated cropping of flowers such as roses, gerbera, gladiolus etc. have been established as livelihood projects within the scope of demonstration farms and seed gardens to demonstrate and promote scientific research in crop development

Education for Sustainable Development (ESD) and Biodiversity Education for Sustainable Development (ESD) is a concept that focuses on how education can contribute to sustainable development. It aims to help people to develop the attitudes, skills and knowledge to make informed decisions for their benefit and others, now and in the future. Biodiversity is the source of economic sustenance and ecological security. However, human activities such as fishing, agriculture, tourism and mining threaten biodiversity endowment particularly when undertaken in unsustainable manner. In this regard, imparting relevant knowledge and skills to the population is necessary to ensure effective biodiversity conservation and hence the need for ESD becomes relevant and

important and inter-cropping. Once they start yielding, the institution will promote such plantations in the villages and facilitate Farmers.

- **Grid connected roof top solar photo voltaic power projects:** The Institution has embarked upon roof-top solar installations at its campus.
- **Water conservation and supply management:** The Institution has invested enormous resources to ensure sustainable water management and use.

About Muzaffarnagar

Muzaffarnagar is a city under Muzaffarnagar Urban Metropolitan Region and is controlled by municipal board in the Indian state of Uttar Pradesh. It is a part of the Delhi NCR abbreviation of National Capital Region (NCR). It is the headquarters of the Muzaffarnagar district. It is situated midway on Delhi -

Haridwar/Dehradun National Highway (NH 58), the city is also well connected with the national railway network. The city is located in the middle of highly fertile upper Ganga-Yamuna Doab region and is very near to the New Delhi and Saharanpur, making it one of the most developed and prosperous cities of Uttar Pradesh. It comes under the Saharanpur division. This city is part of Delhi Mumbai Industrial Corridor (DMIC) and Amritsar Delhi Kolkata Industrial Corridor (ADKIC). It share its border with state of Uttarakhand. It is the principal commercial, industrial and educational hub of Western Uttar Pradesh.

Geography

Muzaffarnagar is 272 meters above sea level in the Doab region of Indo-Gangetic Plain. It is 125 kilometres NE of the national capital, Delhi, and 200 kilometres SE of Chandigarh, and near to Bijnor, Meerut and Hastinapur.

Climate

Muzaffarnagar has a monsoon influenced humid subtropical climate characterised by much hot summers and cooler winters. Summers last from early April to late June and are extremely hot. The monsoon arrives in late June and continues till the middle of September. Temperatures drop slightly, with plenty of cloud cover but with higher humidity. Temperatures rise again in October and the citythen has a mild, dry winter season from late October to the middle of March. June is the warmest month of the year.

The temperature in June averages 30.2°C. In January, the average temperature is 12.5°C. It is the lowest average temperature of the whole year. The average annual temperature in Muzaffarnagar is 24.2°C. The highest and lowest temperatures ever recorded in Muzaffarnagar are 45°C (113°F) on 29May 2018

and −0.9°C (30.4°F), respectively. The rainfall averages 929 mm. The driest month is November, with 8 mm of rain. Highest precipitation falls in July, with an average of 261.4 mm.

Statement of Assurance

The audit was carried out in accordance with the standard procedures for professional internal auditing practise.

In our professional judgment, sufficient and appropriate audit procedures were completed and evidence gathered to support the accuracy of the conclusions reachedand contained in this report. The conclusions are based on a comparison of the situations as they existed at the time of the audit with the established area.

Methodology of Audit

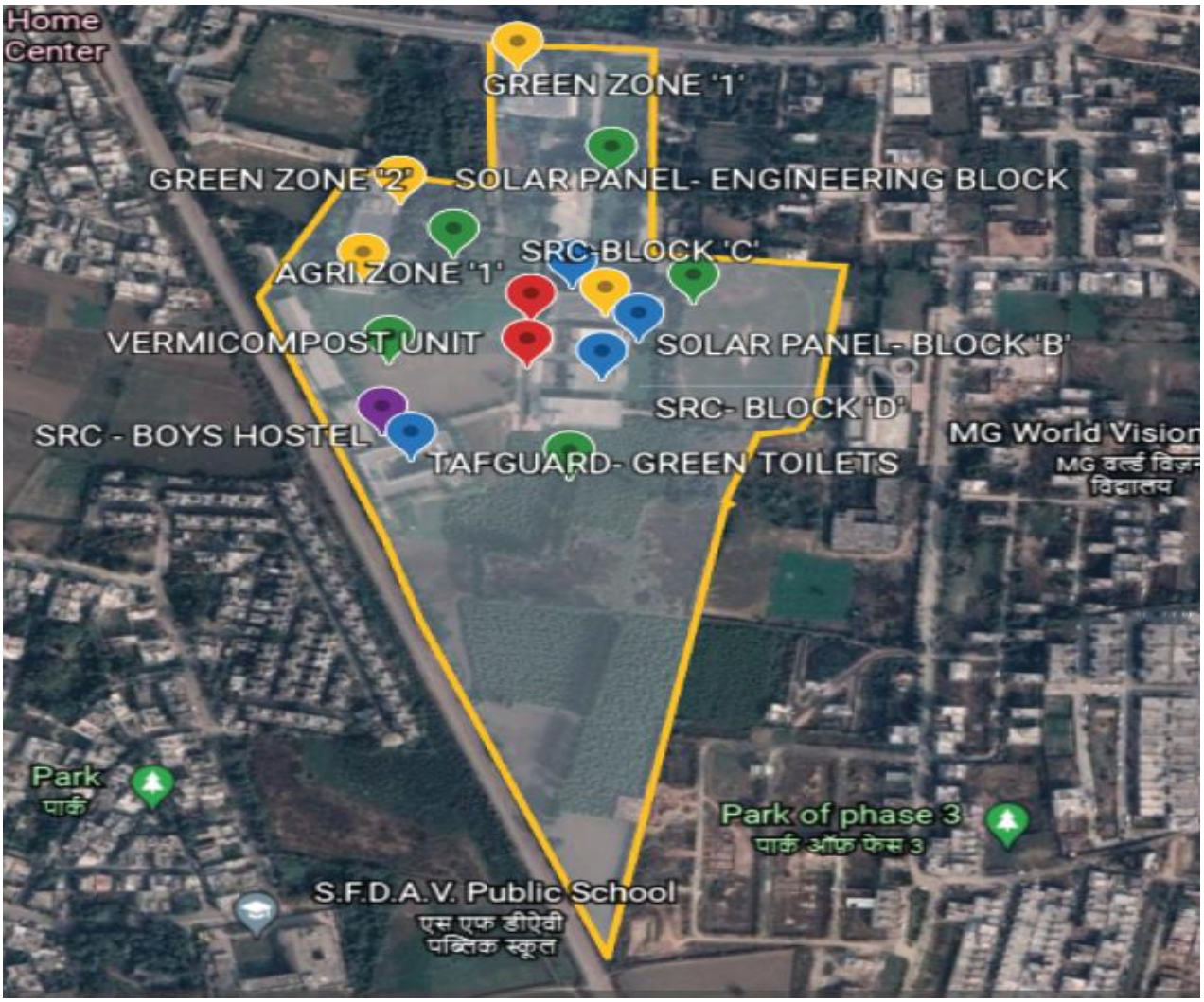
In order to meet its objectives, this audit combined physical inspection with review of relevant documentation and interactions with departmental staff members and students.

- Review of the Documentation: For the purpose of this audit, Green audit framework was reviewed.
- Interviews: Interviews were conducted with the principal, departmental faculties and
  students.
- Physical Inspection: The audit team was conduct physical observation in the collegecampus to inspect the green practices.

Summary of Findings

The audit's main findings reveal that all department staff and students are aware of the need for environmental protection on a broad scale. A number of best practises were also observed in the college premises, including maintaining separate waste collection, introducing rain water harvesting to new building structures, installing solar panels for energy conservation, controlling vehicular movement on campus with rumble strips, speed bumps, and barricades, symbols and signs (energy conservation, save environment, save water) in the campus zone, implementing zero plastic campus, and so on.

Google Earth View of SRGC Integrated Campus



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Audit Framework and Detailed Findings

In 2020-21, the following audit framework will be used to conduct Green Audits. The framework also includes a list of findings and observations for each criterion.

WASTE AUDIT

Criteria- 1 (A): Waste Generation and Management

Objective: Maximize the waste recycled and minimize the quantity of non-recycled refuse.

Activity: Segregation of waste

Audit Observation: Waste Material is segregated as per category like Paper, Cardboard, Scrap Wood, Scrap Metal, Plastic scrap, glass, laboratory rags etc. Each waste is stored at departmental level and periodically sending to other purposes.

Type of waste	Audit Observation
Paper Waste	• One side rough paper is used for the printing of Notices, Time Tables etc. in each department. • Waste papers are sending for shredding to prepare thread and card sheet. • Email and Mobile media communication is used for minimize the use of paper.
Plastic waste	• Plastic bottles, caps and other waste material are stored separately at departmental level and sold as a scrap material
Glass Waste	• Empty chemical glass bottles are sending as a scrap material
Construction Waste	• Construction waste is used for land filling and landscaping within thecollege premises.
Electrical Waste	• Electrical waste like damaged electrical board, switches, cut wires are collect by electrician and replace this with new one and remaining wastage is sold as scrap. • Electrical waste related to computer, key boards, and mouse is collect by Computer science department for repairing and replaces the damaged one and remaining wastage is sold as scrap.

Laboratory Waste	• Microbiological waste is properly sterilized using Autoclave and then dumped in landfills. • Used chemical waste is dumped in landfills.
Kitchen Waste	• Waste from Hostel mess and canteen is used to make compost and manure in vermin-composting unit. • Solid waste is used as feed and fodder for cattles in Dairy farm.

Criteria- 1 (B): Waste Generation and Management Objective:

Collection of Waste Activity: Students as well as faculties of different department concern about waste collection. They do not throw the paper waste in the surrounding premises of collegecampus.

Audit Observation: Proper dustbins are provided to each department. Also 2 large (Steel and plastic) dustbins are install at various location in the college campus for collection of waste including administration office, college canteen, near garden etc. Some dustbins are provided to Boy's hostel (1 dustbin for 2 rooms) for collection of solid waste. The stored waste is collected by Municipal Corporation on everyday basis.

Dustbins in the Campus

Waste Audit Lab

Criteria- 1 (C): Waste Generation and Management

Objective: Plastic free Campus.

Activity: Motivate students about harm of plastic carry bags and items to convincethem for no use of plastic in college premises.

Audit Observation: To aware all students as well as faculties of different department about "No Use of Plastic" in college campus, awareness boards are display at various location in the college campus.

Criteria- 1 (D): Waste Generation and Management

Objective: Management of Garden Waste and Kitchen Waste

Activity: Installation of Vermi-compost unit and Gaushala with the help of IPR & ED cell **Audit Observation:** The collected wastes from garden, debris, leaf latter are collect dumped into vermicomposting unit to prepare the

compost manure from the waste. *Eisenia foetida* species of earthworm is used

for the process. Kitchen waste is collected as used as feed and fodder for cattles in Gaushala.

Students Working in Vermi-Compost Unit

View of Gaushala

Milk Production Area

Recommendations (Criteria 1):

- Reduce the absolute amount of waste that it produces from college staffoffices.
- Make full use of all recycling facilities provided by City Municipality and private suppliers, including glass, cans, white, colored and brown paper, plastic bottles, batteries, print cartridges, cardboard and furniture.
- Single sided paper to be used for writing and photocopy.
- Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated.

Criteria- 2 (A): Water conservation

Objective: Water conservation.

Activity: Rain Water Harvesting

Audit Observation: Rain water harvesting facility is provided to main building and new COE buildings. Block 'A' and Block 'B' collets rain water in cemented water tanks (20000 liter capacity) and use this water for practical, washing and other departmental purpose.

Bio-Toilet Pit

Digital Underground Water Level Recorder

Water Audit

(Academic Year 2020-21)

Water User Profile:

Water User Includes students, staff, visitors etc.

a. Total number of water users: 2000 (Daily average)
b. Number of Employee:150 (Daily average)
c. Number of students :2000 (Daily average)
d. Number of visitors (Daily Average Basis) : 100
e. Average working days: 06
f. College timings: 9:00 AM to 5:00PM
g. Rain water harvesting system availability :Yes
h. Is rain water harvesting system working?: Yes

- **Total submersible Pumps (Ground Water): 07Assessment of water requirement**

Sr. No.	Site	Total no. of Sources	Measurement of water Uses (Daily)				
			Rate of Discharge (Liter/min)	**Average Duration of Use (min)**	**Average Quantity per use (liter)**	**No. of Uses (No.)**	**Total Daily Use (liter)**
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Urinals	98	1.0	1.00	0.8	2200	1200
2.	Toilet/ WC	289	0.80	5.02	4.00	600	2200
3.	Laboratory	32	05	05	15	60	900
4.	Canteen	2	05	225	800	02	2200
5.	Garden	33,190 Sq.M.	04	01	04	33,190	142760
6.	Other (Drinking purpose withRO)	20	0.50	10	05	2500	12500
	TOTAL						**164560**

Water Storage:

Water from our submersible pumps is directly pumped to the overhead tank and direct groundwater is used for gardening and irrigation purposes.

Details of the storage structures:

Storage Tanks	Capacity (Liters)	Number	Number of times it is topped (or filled) daily	Average time of water inflow	Flow rate of water inflow
Overhead 1	22000	08	Once a day	4 hrs 30 min	275 lit/ min
Overhead 2	2800	05	Once a day	15 min	275 lit/min
Overhead 3	1000	12	Once a day	08 min	275 lit/min
Overhead 4	600	04	Once a day	4 min	275 lit/min
Total	26400	28	Once a day	4 hrs 57 min	1100 lit/min

Water losses:

Sr. No.	Site	Total No. of Sources	Measurement of water uses (Daily)		
			Rate of Discharge (lit in hour)	**Daily loss (4) x 24 (lit)**	**Total Loss (lit)**
(1)	(2)	(3)	(4)	(5)	(6)
1	Urinals	92	0.20	4.80	30.7
2	Toilet/ WC	257	0.5	12	45
3	Laboratory	25	0.5	12	68
4	Kitchen	3	2.0	48	48
5	Garden	33,190 Sq.M.	0.25	6.0	40519.78
6	Other (Drinking Pourpose with RO)	20	0.20	4.80	4.80
Total					**40716.28**

Criteria- 2 (B): Water conservation

Objective: Water Saving.

Activity: Water Audit

Audit Observation:

- The storage (overhead/underground tank) checked periodically for any leakage.
- The departmental Tap was checked periodically to prevent from any leakage.
- The leakage Tap replace by new one.

Recommendations (Criteria 2):

- Need of monitoring, controlling overflow is essential and periodically supervision drills should be arranged. In campus small scale reuse and recycle of water system is necessary.
- Minimize wastage of water and use of electricity during water filtration process, if used, such as RO filtration process and ensure that the equipment's used for such usage are regularly serviced and the wastage of water is not below the industry average for such equipment's used in similar capacity.
- Ensure that all cleaning products used by college staff have a minimal detrimental impact on the environment, i.e. are biodegradable and non-toxic, even where this exceeds the Control of Substances Hazardous to Health (COSHH)regulations

Criteria- 3 (A): Energy Consumption (Electrical Energy)

Objective: To save the electrical energy.

Activity: Installation of "Solar Panels".

Audit Observation:

Energy source utilized by all the departments and common facility centre is electricity only. Total energy consumption is determined per day 200 KW and annually 2400 KW in 1 year by major energy consuming equipments.

Understanding the importance of energy conservation Shri Ram College, in the

year 2017, took an initiative and installed Rooftop Solar Panels in the campus producing 160 Kilo Watt of electricity. The reason behind this is to take a bigger step towards environmental protection. We have taken lot of energyinitiatives and our managing committee approved a 160 KW Rooftop Solar Panel System worth Rs. 1.05 crore. The area covered by this solar panel system is 3562.37 square meter which results in 22.26 square meter/ KW. The average production of electricity by this system is 960 KW per day and 350400 KW per year. The configuration of this solar Rooftop system depicts >300 Wp PV modules and string inverter of160 KWP. They operate with a free resource and do not produce greenhouse gas emissions when converting sunshine to electric power.

Electricity Generator Room

Solar Inverter and Metering

Solar Panel Installation

Criteria- 3 (B): Energy Consumption (Electrical Energy)

Objective: To save the electrical energy.

Activity: Installation of LED lights/ lamps at major locations in campus and laboratories.

Audit Observation:

All the departments and common facility centers are equipped with LED tubes, Lamps, Fans, coolers and AC, Central AC etc. Equipments like Computers are used with power saving mode. Also, campus administration runs switch –off drill on regular basis. In science department like Physics, Chemistry, Biotechnology, Electronics, Computer Science, Botany and Zoology electricity was shut downed after occupancy time is one of green practices for energy conservation.

Criteria- 3 (C): Energy Consumption (Electrical Energy)
Objective: To save the electrical energy.

Activity: Conservation of Electrical Energy at Departmental Level

Audit Observation:

- All laboratory having panel boards MCB switch to control the electrical supply within the department. The responsibility is given to non-teaching staff to "Switch-off" this switch without any ignorance to avoid the wastage of electrical energy.
- Sign boards like "Switch off the fans / light when not in use" are displayed in the departments.
- The water pumps are regularly maintained for minimum consumption of electricity.
- Solar panel system is installed for entire college campus.
- LED lamps, LCD monitors, Branded fans are used to minimize the consumption.

Criteria- 4: Energy Consumption (Transportation)

Objective: To save the fuel energy.

Activity: Motivate to students and faculties for reduce the use of vehicles in

college campus.

Audit Observation: Every Saturdays of each month is declared as a "No vehicle day" by college authority to minimize the use of personal vehicles with in the college campus. To motivate and aware the students regarding minimum use of vehicles "Cycle Day" programme is arranged by college faculty.

Criteria- 5: Energy Consumption (LPG Cylinder) and IGL Connection

Objective: To save the LPG energy

Activity: Conserve the LPG at departmental Level

Audit Observation:

- The gas burners, tubes are checked periodically to prevent the leakages of gas.
- Slow flame is adjusted during the practical work to minimize the excess use of gas.
- The practical is listed as per use and non use of LPG
- The empty cylinder are stored centrally and labeled as "EMPTY"
- The use and requirements of each department about LPG is monitored by controlling sheetand send to office.

Criteria-6: Cyber Waste Generation

Objective: To minimize E-waste

Activity: Proper disposal of E-waste generated

Audit Observations:

E-waste can be described as consumer and business electronic equipment that is near or at the end of its useful life. This makes up about 5% of all municipal solid waste worldwide but is much more hazardousthan other waste because electronic components contain cadmium, lead, mercury, and Polychlorinated biphenyls

(PCBs) that can damage human health and the environment.

E-waste generated in the campus is very less in quantity. The cartridges of laser printers are refilled outside the college campus. Administration conducts the awareness programmes regarding E-waste Management with the help of various departments. The E- waste and defective item from computer laboratory is being stored properly. The institution has decided to contact approved E-waste management and disposal facility in order to dispose E-waste in scientific manner.

Recommendations (Criteria 3-6)

- Recycle or safely dispose of white goods, computers and electrical appliances.
- Use reusable resources and containers and avoid unnecessary packaging where possible.
- Always purchase recycled resources where these are both suitable and available.

Criteria- 7: Green Campus

Objective: To increase the Green Cover within the college campus.

Activity: Establishment of lawns and gardens, Plantation programmes, Shade Net House

Audit Observations:

The college campus is covered with the various species of the plants and maintained by the gardener all time. The varieties includes Melia azedarach, Populus, Neolamarckia kadamba, Delonix Regia, Tectona grandis, Toona ciliata, Pine, Cycas, Maulsari, Ficus, Eucylyptus, Jade Plant, Casaurina, Pistol Palm,

Areca palm, Platycladus orientalis, Rudraksh, Silver Oak, Bismarckia Palm, Raphis Palm, Sapodilla, Mango, Monkey Jack, Litchi, Guava, Java Plum, Sideroxylon inerme, Murraya Paniculata, Crepe jasmine, Peace Lily, Hibiscus, Rose, Bamboo etc. and many other medicinally important plant such as Shatavari, Bakayan, Harsingar, Aak, Patthar chatta, Karipatta, Lemongrass, Doob ghaas, Calendula and Sadabahar etc. Campus also have several indoor plants including Ficus removes (formaldehyde, & benzene), Spider plants (carbon mono oxide, benzene & trichloroethylene), Snake plants, Bamboo palm, Rubber plant, chrysanthemum, Peace lily, & Gerbera etc. In point of view of importance of the assessement, zones were divided as:

Green Zone '1' : (Includes Block 'A', Main Entrance, Pavement from entrance to Block 'B', Parking Area)

No. of trees: 59

No. of Plants: 600

Grass Lawn Area: 6200 sq. m.

Haze Area: 2575 sq. m.

Green Zone '2' : (Includes College of Technology, College of Architecture, Boys Hostel)

No. of trees: 420

No. of Plants: 1210

Grass Lawn Area: 2405 sq. m.

Haze Area: 3652 sq.m.

Green Zone '3': (Includes Block 'B', 'C', 'D' , Playground and Shri Ram College of Pharmacy)

No. of trees: 102

No. of Plants: 880

Grass Lawn Area: 24,585 sq.m.

Haze Area: 654 sq.m.

Agriculture Zone '1': (In front of Block 'B', 'C')

Crops Grown: Rice, Wheat

Area: 1.5 Acre

Agriculture Zone '2': (Behind Block 'B', 'C' and Shri Ram College of Pharmacy)

Crops Grown: Sugarcane

Area: 3 Acre

Seed Production Technology

Table: List of Fauna in SRGC (integrated campus)

SN	ZOOLOGICAL NAME	COMMON NAME	FAMILY
MAMMALS			
DOMESTIC TYPE			
1.	*Felis catus*	Domestic Cat	Felidae
2.	*Sus scrofa*	Pig	Suidae
3.	*Canis lupus*	Dog	Canideae
4.	*Capra aegagrus hircus*	Goat	Bovidae
5.	*Pteropus giganteus*	Indian Fruit Bat	Pteropodidae
6.	*Equus caballus*	Khachhar/Mule	Equidae
7.	*Bubalus bubalis*	Buffalo	Bovidae
WILD TYPE			
8.	*Herpetes edwardsii*	Nevala	Herpestidae
9.	*Boselaphus tragocamelus*	Neelgai	Bovidae
10.	*Funambulus pennantii*	Gilhari	Sciuridae
11.	*Lepus nigricollis*	Khargosh	Leporidae
12.	*Rattus rattus*	Chuha	Muridae
13.	*Pteropus giganteus*	Indian Fruit Bat	Pteropodidae
14.	*Semnopithecus entellus*	Langur	Cercopethicidae
REPTILES			
16.	*Ptyas mucosus*	Common rat snake / Dhaman	Colubridae
17.	*Bungarus caeruleus*	Common Indian Krait	Elapidae
18.	*Hemidactylus maculates*	Rock Gaeko	Gekkonidae
19.	*Chamaleo chamaleons*	Chameleon	Gekkonidae
20.	*Hemidactylus brooki gray*	Chipkali	Gekkonidae
AMPHIBIANS			
21.	*Rana tigrina*	Common Frog	Ranidae
22.	*Bufo bufo*	Toad	Bufonidae
INSECTS			
23.	*Eurema hecabe*	Common grass yellow butterfly	Pieridae
24.	*Delias eucharis*	Common jezebel	Pieridae
25.	*Acheta domesticus*	Jhingur/Cricket	Gryllidae
26.	*Apis dorsata*	Honey Bee	Apidae

Table: List of Avi Fauna in SRGC integrated campus

S. No.	ZOOLOGICAL NAME	COMMON NAME	FAMILY
1	*Achridotherus tristris*	Common Myna	Sturnidae
2.	*Corvus splendens*	Crow	Corvidae
3.	*Eudynamys scolopaceus*	Koel	Cuculidae
4.	*Psittacula krameri*	Parrot	Psittaculadae
5.	*Pycnonotus cafer*	Bulbul	Pycnonotidae
6.	*Saxicoloides fulicatus*	Robin	Muscicapidae
7.	*Ploceus philippinus*	Baya Weaver	Ploceidae
8.	*Coturnix coturnix*	Quail	phasianidaese
9.	*Picideae*	Wood pecker	Picidae
10.	*Vanellus indicus*	Red Wattled Lapwing	Charadriidae
11.	*Columba livia*	Pigeon	Columbidae
12.	*Passer domesticus*	Sparrow	Passeridae
13.	*Luscinia megarhynchos*	Nightingale	Muscicapidae

Recommendations (Criteria 7):

- Reviews periodically the list of trees planted in the garden, allot numbers to the trees and keep records. Give scientific names to the trees.
- Promote environmental awareness as a part of course work in various curricular areas, independent research projects, and community service.
- Create awareness of environmental sustainability and takes actions to ensure environmental sustainability.
- Establish a College Environmental Committee that will hold responsibility for the enactment, enforcement and review of the Environmental Policy. The Environmental Committee shall be the source of advice and guidance to staff and students on how to implement this Policy.
- Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings.
- Celebrate every year 5th June as 'Environment Day' and plant trees on this day to make the campus more Green.
- Plant exhibition arranged regularly in college campus.

Shri Ram College Lawn of Entrance

Shri Ram College Block B

Shri Ram College Play Ground

Open Art Studio of Shri Ram College

Agriculture Zone ‘1’

Backside View of Green Campus

Tree Plantation

Pavement

Canteen

GREN CAMPUS INTIATIVE ACTIVITIES

a. TREE PLANTATION IN CAMPUS

Tree plantation is the major tools to control the air pollution and maintain the environmental balance.

It is found that one fully grown trees absorbs 6.8 kg carbon dioxide CO_2 at the same time it gives oxygen gas more than 6.8 kg. It shows the importance of plantation and conservation of trees.

Every year planted trees growing responsibility and conservation of that plant is given to each volunteer of the NSS. After plantation each volunteer take the responsibility of one plant of its care. NSS unit organized environmental awareness programmes time to time. During the festival season the volunteer creates the awareness among the people to stop or reduce the water pollution, noise and air pollution.

Tree Plantation at Shri Ram College

Green Cycle Campaign at SRC

B. SURVEY OF VEHICLES AND CARBON FOOTPRINT

Vehicles are the primary source of air pollution. Carbon dioxide, carbon monoxide, nitrogen oxide, hydrogen, ammonia, and sulphur dioxide are the elements responsible for air pollution emitted by vehicles. These elements are poisonous to human health and other living animals, and they also harm the ecosystem. As the number of vehicles on the road grows, so does the world's and our country's population, resulting in an increase in air pollution. The use of vehicles generates a number of waste products that are harmful to the environment. Furthermore, they imitate in the environment, which contributes to pollution. Staff members and students uses the number of vehicles for the transportation. These leads to the airpollution. But to overcome this big problem of pollution college has adopted the systematic policy of transportation. The most of students are from outside of the town and they use the public transport for the

transportation. Student from the town preferred the use of bicycle mostly the girl student's used bicycles. Asthe college is near to the bus stand student used to walk to college. Staff members of the college and visitors uses the cars or bikes or auto rickshaw and some staff member uses bicycles.

To manage the transportation system, the college has implemented policies such as requiring college employees to use the sharing transportation system. Colleges have taken another step toward reducing their carbon footprint by celebrating a vehicle-free day on which students and staff members use the state transportation system.

1. ABSORPTION OF CARBON

The economic value of a fully grown tree in terms of oxygen producing capacity is nearly equal to Rs 23.72 Lacs per year, according to a report by NGO DELHI GREENS. The claim is based on facts that an average adult at rest inhales nearly 7-8 litres of air per minute, or about 11,000 litres per day, of which about 20% is oxygen and nearly 15% is exhaled, according to the NGO "economic valuation of oxygen supplying ecosystem service of healthy tree." Every day, humans consume about 550 litres of pure oxygen. According to a market survey, the average cost of 2.75 portable oxygen cylinders is Rs. 6500, and humans consume oxygen worth Rs. 6500 at this rate.about rupees 13 lakhs per day.

By taking some consideration the following numbers cones out,

- Number of full-grown Trees in campus=500.
- Carbon absorption capacity of 500 trees=carbon emission during run of 25,000miles.25,000 miles = 40223.6km
- Petrol / Diesel consumes by a Vehicle for 40233.6 km= 2011.68ltr.
- The carbon emitted by a Vehicle by consumption of 01 ltr of diesel is 2.68kg.
- Thus carbon emitted by 2011.68 ltr is 5391.30 kg (2011.68 lts x 2.68kg)

Amount of carbon absorbed by the one full grown tree is

5391.30 kg/500= 10.7826 kg.

Absorption of carbon dioxide:

As the college campus having number of plants, trees. The huge amount of carbon dioxide isabsorbed and converted in oxygen.

- College campus having 490 full grown trees there it absorbs (490 x 10.7826kg)= 5285.924kg CO2 or **5.285tons**

- College campus having 2493 semi grown plants, flowers and 40,000 sq. m. of Lawn and Bush area (equivalent to 50 semi grown plant), therefore it absorbs one third of full grown trees (2500x 3.594 kg) = 8985 kg CO2 or **8.98 tons.**

Total Absorption of Carbon dioxide = 5.285 + 8.98 = 14.265 Tons

2.*Oxygen emmission in Campus:*

According to the growing air foundation,

- Trees renew our air supply by absorbing carbon dioxide and producing oxygen.
- The amount of oxygen produced by an acre of trees per year equals the amount consumed by 18 people annually. One tree produces nearly 260 pounds or 117.934 kg of oxygen each year.
- One acre of tree removes up to 2.6 tons of carbon dioxide each year.
- Trees lower air temperature by evaporating water in their leaves.

Therefore, Total oxygen emitted by the 490 full grown trees is

(490 x 117.934)= 57,787.66 kg or 57.787tons

By the semi grown plants, lawns and bushes is about (2500 x 39.311) = 98278.33 kg or 98.27 tons

Total oxygen emitted by the campus greenery = 156.8.505 tons / per annum

A Pilot Study on Household Organic Waste Separation Behaviour in Collaboration with MIT, USA:

Organic waste accounts for a significant portion of total waste. If this waste is separated at the household level, it has the potential to be used in organic waste technologies. A pilot study was designed and carried out in two neighbourhoods of Muzaffarnagar to test incentives for increasing household organic waste separation behaviour. Students from the Bio Science department of SRC Development worked on a project called "Decision Support Tool for Planning Municipal Solid Waste Management Systems" in collaboration with the Massachusetts Institute of Technology in the United States and Nagar Plaika Muzaffarnagar..

Two neighborhoods of similar income levels, Gandhi Colony and Teachers Colony, were chosen as the test neighborhoods for the pilot study. In one neighborhood (Gandhi Colony), no feedback was given to the households on their waste separation quantities or separation rate. This neighborhood is known as the door-stepping neighborhood. In the other neighborhood (Teachers Colony), feedback was given to the households on a weekly basis for a period of one month. This neighborhood is known as the feedback neighborhood. Finally, an analysis of the benefits and costs of implementing a city-wide segregation policy in the city of Muzaffarnagar was calculated.

The participants distributed two bins (green and red) and one bag to the households free of charge and explained the new waste collection system. The bins were given free

of-charge to the households through a seed grant funded by the Tata Trusts. The awareness program was conducted in both Hindi and English and leaflets were handed out along with the two bins and bag kit.

Shri Pankaj Aggarwal
Chairman
Nagar Palika Muzaffarnagar

कचरा प्रबन्धन की विधि

Dr S C Kulshreshtha
Chairman
Shri Ram Group of Colleges
Muzaffarnagar

1. जैविक कचरा

(प्लास्टिक बैग का प्रयोग ना करें)

रसोई का कचरा
सब्जी / फल के छिलके
पकाया / बचा भोजन
अंडे के छिलके
चिकन / मछली व हड्डियाँ
सडे फल / सब्जियां
भोजन के लिए इस्तेमाल किया गया टिशू पेपर,
चाय बैग / कॉफी पाउडर
पत्ते की प्लेटें

बगीचे का कचरा *
(केवल कम मात्रा में ही)
गिरे हुए पत्ते/छडी
पूजा के फूल/माला,
घास आदि

2. सूखा कचरा

(केवल पुनः उपयोगी बैग का प्रयोग)

प्लास्टिक
(अगर गंदे हो, साफ किया जाना चाहिए)
प्लास्टिक कवर/बोतलें/बक्से/
चिप्स /टॉफी रैपर
प्लास्टिक/कागज कप, प्लेट
दूध/दही पैकेट

कागज
(अगर गंदे हो, साफ किया जाना चाहिए)
अखबार / पत्रिका
स्टेशनरी / जंक मेल
गत्ता डिब्बे / पिज्जा बॉक्स
टेट्रा पैक

धातु
(अगर गंदे हो, साफ किया जाना चाहिए)
पन्नी कंटेनर
धातु के डिब्बे
कांच (देखभाल के साथ)
बिना टूटा हुआ ग्लास जार / बोतलें

अन्य सूखा कचरा
रबड / थर्मोकोल
पुराने कपडे / ब्रश / स्पंज
सौंदर्य प्रसाधन
मिट्टी / लकडी के टुकडे
बाल (बडी मात्रा में)
नारियल के गोले (आंतरिक और बाहरी दोनों)

इलेक्ट्रॉनिक कचरा - **(सावधानी के साथ अलग से सौंपे)**
बैटरियां
सीडी / टेप
थर्मामीटर
बल्ब / ट्यूब लाइट / सीएफएल**

3. बेकार कचरा

(प्लास्टिक बैग का प्रयोग ना करें)

सैनिटरी कचरा
(अखबार में लपेटा जाना चाहिए)
डायपर / सैनिटरी नैपकिन
पट्टियाँ
कंडोम
नाखून
टिशू पेपर – (इस्तेमाल किया हुआ)
समय सीमा समाप्त दवाएं,
झाड़ू की धूल

तेजधार वाले पदार्थ***
(अखबार में पैक करके अलग से सौंपे, केवल कम मात्रा में ही)
रेजर
प्रयोग में लायी हुई सीरिंज
ब्लेड
इंजेक्शन की बोतलें

निर्माण कार्य का मलबा/ निष्क्रिय पदार्थ****
(अलग से सौंपे)
मलवा
पेंट
नाली की गंदगी
सीमेंट पाउडर/टुकडे,
फूलदान

टूटे कांच (अखबार में लपेटा जाना चाहिए)

मुजफ्फरनगर पालिका परिषद्

http://www.2bin1bag.in

3. AWARENESS PROGRAMMES

We must first understand the environmentalist movement in order to define environmental awareness. Environmentalism is an ideology that emphasises humans' need to respect, protect, and preserve the natural world from anthropogenic (caused by humans) afflictions. Environmental consciousness is critical to the movement's success. By instilling in our friends and family the importance of the physical environment, we can begin to address the issues that threaten it.

A good course of action that ensures your continued participation is to pick an environmental issue that strikes you as the most urgent. The amount of environmental issues seems limitless, and while they are all important, it's easy to get overwhelmed. Thus, Shri Ram College time to time arranged such type of programmes in this session, some of the noteworthy are:

1. "NO POLYTHENE CAMPAIGN" with Muzaffarnagar District Administration
2. Best of WASTE Competition
3. World Environment Day
4. Plantation Programmes with NSS time to time
5. International seminar of "Problem of Waste water" with Japan's Taf Guard JICA foundation.
6. Seminar on Waste Management
7. World Water Day
8. Green Cycle Campaign

International Seminar on "Problems of Waste Water Treatment"

Japan's Taf Guard Technology Team at Shri Ram College

Rally for Rivers **Unnat Bharat Abhiyaan**

Best Out of Waste Competition **Science Exhibition**

Tree Plantation by NSS Volunteers of Shri Ram College

Swacch Bharat Abhiyaan

Ganga Yatra by students of SRC

Gur Mahotsav (Promoting Herbal Jaggery)

Water Level Indicator Developed by SRT

Seminar on Taisei Soil System-Japan's Tafgard Technology

JAPAN`s Expert Team visit at Shri Ram College

Chairman Welcoming Japan's Team

Green Toilet Project

MIT Seminar on "Waste Management System"

Plantation and Clean Abhiyan in Muzaffarnagar

CONCLUSIONS

Given that the institution is primarily an undergraduate college, both faculty and students conduct extensive environmental research. The environmental awareness campaigns are extensive. Solar panels, a paperless work system, and vermin-composting practises are noteworthy. Furthermore, environmental awareness programmes initiated by the administration demonstrate how the campus is becoming more environmentally friendly. A few recommendations are made to reduce the threat of waste management through the use of environmentally friendly and scientific techniques. This could pave the way for a prosperous future in the context of Green Campus, resulting in a more sustainable environment and community development.

We carried out environmental monitoring of campus, including illumination, noise level, ventilation, and indoor air quality of the class room, as part of the green audit of campus. It was discovered that illumination and ventilation are adequate in light of the available natural light and air velocity. The noise level on campus is well below the limit, i.e. less than 50 dB during the day.

As part of the campus's green audit, we conducted environmental monitoring, including lighting, noise level, ventilation, and indoor air quality in the classroom. It was discovered that, given the available natural light and air velocity, illumination and ventilation are adequate. During the day, the noise level on campus is well below the limit, i.e. less than 50 dB.

The land is in a constant state of birth,

Giving life to all who live on Earth.

Our carelessness and fears

Have taken a toll over the years.

Her land is parched and scorched

As man continues to light the torch.

We continue a want of speed and ease,

All while our pesticides kill off our bees.

It's time to wake up and see Mother Earth's pain.

Humanity's selfishness is becoming insane.

Soon her cries will turn to gloom,

And man will cause its own doom.