

April 2022

# Green Audit Report

Prepared for  
Deshbandhu College,  
University of Delhi



Prepared by  
Environment Pollution Analysis Lab  
Bhiwadi, Alwar, Rajasthan

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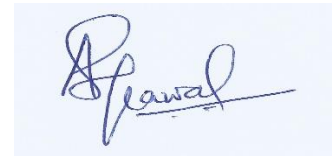
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## ACKNOWLEDGEMENT

**Environmental Pollution Analysis Lab (EPAL), Bhiwadi, Rajasthan** conveys sincere gratitude to management of *Deshbandhu College (Delhi University, Delhi)* for assigning this important work of *Green Audit (Environmental Audit)*. We appreciate the cooperation of our team for the completion of study. Our special thanks to Principal, Deshbandhu College **Prof. (Dr.) Rajeev Agrawal** for his support and guidance. Team EPAL is thankful to the Green Audit Coordinator **Dr. Sunil Kayesth** for his efforts. We are thankful to the faculty coordinators for the green audit exercise, without their support, this audit would not be able to be completed.

We are thankful to the other Teaching Staff of College for giving us necessary inputs to carry out this very vital exercise of Green Audit. We are also thankful to other non-teaching staff members who were actively involved while collecting the data and conducting field measurements.



**(Dr. Sanjeev Agrawal)**  
**Lead Auditor**  
**For Environment Pollution Analysis Labs**  
**(EPAL), Bhiwadi Rajasthan**


**Date: 10/05/2022**  
**Place: Delhi NCR**

## DISCLAIMER

Environmental Pollution Analysis Lab Green Audit Team, Bhiwadi, Rajasthan has prepared this report for Deshbandhu College (Delhi University, Delhi) based on input data submitted by the representatives of university complemented with the best judgment capacity of the expert team. While all reasonable care has been taken in its preparation, details contained in this report have been compiled in good faith based on information gathered.

It is further informed that the conclusions are arrived at by best estimates and no representation, warranty or undertaking, express or implied, is made and no responsibility is accepted by the Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

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**(Dr. Sanjeev Agrawal)**  
**Lead Auditor,**  
**For Environment Pollution Analysis Labs**  
**(EPAL), Bhiwadi Rajasthan**

**Date: 15/05/2022**  
**Place: Delhi NCR**

## **CONTEXT FOR GREEN AUDIT**

The National Assessment and Accreditation Council, New Delhi (NAAC) has recommended that from the academic year 2016–17 onwards that all Higher Educational Institutions should submit an annual Green Audit Report. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures. In view of the NAAC circular regarding Green Auditing, the College Management decided to conduct an external Green Evaluation by an independent agency having competent auditors. The audit process was started in March, 2022.

### **Aims and objectives of Environmental Audit in Academic Institutes:**

To nurture environmentally friendly management in academic College/institutions and the following aims and objectives were formulated:

- To assess environmental performance and the effectiveness of the measures to achieve the defined objectives and targets.
- To identify the different pressures on organizations to improve their environmental performance.
- To recognize the initiative taken by the Organization towards the environment.
- To secure the environment and cut down the threats posed to human health.
- To provide baseline information to enable organizations to evaluate and manage environmental change, threat and risk.
- To recognize, diagnose and resolve environmental problems.
- To recognize the effects of an organization on the environment and vice versa.
- To identify and control the impact of activities of organizations on the environment.
- To suggest the best protocols for sustainable development organization and environment.
- To ensure that the natural resources are utilized properly as per national policy of environment.
- To establish the parameters for maintaining health and welfare of the community of the organization.

- To set the procedure for disposal of all types of harmful wastes.
- To reduce energy consumption.
- To give preference to the most energy efficient and environmentally sound appliances.
- To minimize the consumption of water and monitor its quality.
- To identify the risks of hazards and implement the policies for safety of stakeholders.
- To facilitate the stakeholders with different aspects of disaster management.
- To train all stakeholders of the organization and empower them to contribute and participate in the environmental protection.
- To make sure that rules and regulations are taken care of to avoid interruptions in the environment.

To achieve the mentioned objectives following stages are implemented. It includes three stages viz. pre-audit stage, audit stage and post-audit stage. Each of these stages comprises a number of clearly defined objectives, with each objective to be achieved through specific actions and these actions yielding results in the form of outputs at the end of each stage. Keeping the importance of environmental audit in view, the present study focuses on reviewing the process of environment audit and the measures to be taken by academic institutes to contribute towards the environment.

# Executive Summary

*Deshbandhu College, University of Delhi, New Delhi*, is a NAAC accredited 'B++' grade college with a core mission to achieve academic excellence and achievements focusing on young's (Girl's & Boy's) education. Their motto literally means "The real ornaments are Knowledge, Modesty and Sense of duty". They are conscious of their fundamental duties as envisaged in the constitution of India and try to incorporate best practices at institutional levels to minimize the impact on the environment and ensure resilience and sustainability. The college is committed to fulfill the legitimate requirements of the present generation without compromising the ability of future generations to meet their own needs in line with sustainable development goals (SDGs). The College strives to reconcile institutional activities with environmental conservation for a safe and secure future in the era of climate change. *Deshbandhu College* is committed to practice and maintain high environmental standards in all of its activities, including teaching, research, and community involvement. The College is more ecologically conscious and has earned a reputation as a responsible institution. The biodiversity with lush green flora and fauna with equally maintained herbal and plant gardens is a testament to their credentials for maintaining high environmental standards.

The College has accorded top priority to environmental sustainability by taking several initiatives like installation of roof-top solar panels having installed capacity of 72 kW which was commissioned in January 2021, building an Integrated Composting Facility for producing organic manure, creating an Integrated Rainwater Harvesting System for the entire campus, switching to PNG, a greener fuel, energy efficient lighting with 80% LED lighting and 5 STAR and VRF rating air-conditioning systems etc. College has also signed a MoU with Bureau of Energy Efficiency (BEE) for Energy audits of its campus. The College Library, a key indicator and driver of academic standard of the college, was ranked the best College Library in the University in 2020 in a study published in DESIDOC Journal of Library & Information Technology, DRDO. Library has a fully digitized catalogue, a collection of more than 1,05,000 books, one of the largest in the entire University, a host of journals and magazines, separate A.C. reading rooms for teachers, students and research scholars and a Book Bank section. Sprawling campus of the College, with more than 60% green cover boasting of over 35 species of flora, lawns, playgrounds, parade ground and Botanical Garden, Amphitheatre, air-conditioned Auditorium with seating capacity of 200, large departmental rooms and well equipped laboratories, separate



students' common rooms for girls and boys, gymnasium, canteen, photocopy shop, Medical room, banking facility, seminar hall and spacious smart classrooms provide a healthy and active environment for all round development of our demographic dividend. For furthering ICT mediated teaching-learning pedagogy the college campus is completely Wi-Fi enabled, with 80 computers in Web Access Centre, a computer lab with 60 computers, 60 computers with Internet connectivity in the library and Computer Science and Mathematics department laboratories with 35 and 90 computers, respectively. College provides a conducive environment for comprehensive development through organization of seminars, lectures, workshops, Sports, N.S.S., N.C.C. and other co-curricular activities with a spending of more than Rs. 22,50,000/- in 2020-21. College has many laurels and accolades in the form of gold medals in Yoga, Weight Lifting & Kick-Boxing and Inter-Archery Competition medals, a testimony to our excellence in sports. College has all three wings of NCC, with separate male and female wings in Army and Air Force, their most notable achievements being selection of best cadet for All India Guard Team during PM rally and cadets for Republic Day parade. Boasting of a rich cultural heritage, College provides infrastructure and support to the culturally active students in debating, theatre, music, fashion, dance, film making and photography to nurture their talent enabling them to win many accolades every year at the national, state and university level competitions. The *Environmental and Energy Policies of the Deshbandhu College, located at Kalkaji New Delhi* is made to provide an overview of the College's vision to minimize the environmental impacts of its activities and operation and sustainable management of the available resources. Keeping this in mind Deshbandhu College had carried out recently *Energy Efficiency* audit through independent expert of Bureau of Energy Efficiency (BEE, India) which give them exemplary performance credit to the college. The policy statement highlights how the College would pursue environmental best practices and inspire the sustainable use of resources at the community level within and outside College premises. It lays out the concepts; delineate priority areas, and methods for the College's environmental plans' implementation, management, and evaluation. Its goal is to reduce energy and raw materials consumption that could jeopardize the sustainability measures being taken at college level. This policy will communicate the College administration's goals and objectives to college employees, students, and staff, as well as aid in the creation of a better environment for future generations.

The policy document of the **Deshbandhu College, New Delhi** will also aid in the integration of efficiency and environmental consciousness into daily activities, allowing them to better understand

their duties and dedication to natural resource conservation and utilization under Resource Efficiency tasks. They are excited to learn about new approaches that could help put the sustainability drive into action. The College will continue to be an attractive institution for study, research, sponsorship, and collaboration with the government as a result of the legislation and execution of their innovative policy, which will serve as a model for other institutions.

***Deshbandhu College*** is passionate about the environment and has implemented various sustainable environmental initiatives in its campus. Various committees have been constituted to carry out and oversee these tasks. On the academic front College has an independent department i.e. Department of Environmental Sciences for teaching the compulsory course of environmental sciences at graduate level. Apart from that, the College have also duly constituted important committee to assess, manage and implement the College policing in line with sustainable practices for example they have an active Eco-club, Garden committee, Plant incubation center, Solid waste management committee, and other clubs/committees actively working at institutional level. Following are the initiatives that have been taken at the institution levels for promoting awareness among students of all the disciplines about the problems of climate change through academic as well as non-academic outreach activities. The College involves different stake-holders for their environmental activities for a broader outreach.

**Deshbandhu College had pursued the following objectives:**

- 1) To establish sustainable practices on campus and among stakeholders and to ensure the long-term viability and environmental protection of the organization.
- 2) The College will attempt to train its personnel and develop knowledge of environmental issues and the environmental effects of its activities among academic staff, students, and other users.
- 3) The semester-long course-curriculum to promote education for the multidisciplinary nature of environment and sustainable development.
- 4) The College respective committees will formally monitor the work done on sustainability projects/initiatives, measure their progress, and report on their accomplishments.
- 5) The College/university will continue to comply with environmental legislation in order to reduce its environmental effect by pursuing a number of goals, including plantation, water management, energy conservation, solid waste management, air quality management, and carbon footprint reduction through life-style activities.
- 6) To make the Institute a role model in the area of energy conservation, they train teachers, non-teaching staff, students, and housekeeping staff.

- 7) Actively collaborate with local groups in the areas of environment, energy efficiency, and sustainable development by engaging in communication with government agencies, municipal corporations, and affiliating Colleges to actively promote environmental assessment initiatives to raise awareness about keeping the campus clean and lush-green.
- 8) College is taking initiatives that are friendly (clean fuel, renewable resources etc.) and reduction in resource consumption. Financial savings via reducing resource use and practical experience which enriches the curriculum. College also improving/updating the institution's profile is the prime objective of the College.
- 9) Encourage people from all walks of life to be aware of the importance of energy conservation to review the policy at least once a year. Instilling in young people an environmental ethic and value system.
- 10) Encourages faculty members to become Certified Energy Auditors and Managers to establish relationships with businesses and conduct a comprehensive energy audit. Finally, college conducted audits to identify areas for improvement and make recommendations.
- 11) Teach sustainable development to students from all disciplines and to promote sustainable development research and knowledge dissemination,
- 12) Green campuses and support local sustainability efforts, and to engage and share information with worldwide networks and to implement car, bon-neutral policies to increase environmental promotional events on campus to raise awareness.
- 13) Establishment of an environment/green committee to oversee eco-friendly projects on campus and in the surrounding area.
- 14) Introduce innovative technologies to make efficient use of energy resources and use of renewable energy sources and Optimize energy usage and costs.
- 15) Reduce, Reuse, and Recycle are the three R's to conduct solid waste management and internal energy audits on a regular basis to find energy-saving options.
- 16) The College has carried out the institution's energy audit and management cell to manage regular monitoring and follow-up procedures to ensure effective implementation at department levels.

## INTRODUCTION

Deshbandhu College University of Delhi, a NAAC B++ grade accredited college with CGPA of 2.80, was established in 1952 by the Ministry of Rehabilitation, in memory of Lala Deshbandhu Gupta, a veteran freedom fighter and Member of Parliament. Making a humble beginning with just 72 students and courses like Prep (Arts), Prep (Science) and Pre-Medical Sciences, the college today offers seven post-graduate and eighteen undergraduate courses in disciplines ranging from Humanities, Social Sciences, Sciences and Languages including Modern Indian Languages like Hindi, Punjabi, Bengali, Sanskrit and Sindhi, taught here only among all Delhi University colleges, catering to over 5000 students every year. It is a fully maintained constituent college of Delhi University, with the distinction of being the oldest and the largest co-educational institution in South Delhi near Kalkaji, New Delhi. Guided by the mantra "Karmanyevadhikaraste" - our motto, the college continues to grow in size and stature securing All India 60th rank under Colleges Category in NIRF Rankings 2021 and with 44th rank in sciences, 54th rank in Commerce and 81st rank in Arts category with all India 6th position in overall placements in the India Today Rankings 2021.

**DESHBANDHU COLLEGE** campus located at Kalkaji, New Delhi is dotted with an administrative block, Dr. B.R. Ambedkar block, Dr. A.P.J. Abdul Kalam block, Swami Vivekananda Auditorium, a huge library, and with well-equipped laboratories, together with students' common rooms, gymnasium, canteen, photocopy, web access centre, medical room, banking facility, a seminar hall. Nevertheless, the college is having **I-4 Centre** (Interdisciplinary Research Centre) under the "DBT-Star College" Scheme awarded by Department of Biotechnology, for interdisciplinary research at undergraduate level has fully equipped research laboratory with working space for 20 faculty and 50 students at a time. The College boasts of a strong research profile with its faculty publishing more than 160 research papers this year out of which more than 80 research publications in SCI/SCOPUS/Web of Science/UGC-CARE indexed international and national refereed journals and utilized more than Rs. 48,00,000/- in various research grants received by the college, in the year 2020-21. Under its resource-sharing and knowledge exchange drive, College has signed MOU with Pettigrew College, Manipur University, for Educational Exchange Programme under Vidya Vistar Scheme of Delhi University. College has taken significant strides in the area of Skill Development of its students

with skill-based courses integrated in the curriculum and signed *MOUs with four Sector Skill Councils and six Industry Partners*. *College adopted five villages of the South Delhi district under the Unnat Bharat Abhiyan Scheme to fulfil its obligation towards societal engagement and empowerment of under privileged people, is participating in the “Ek Bharat Shreshth Bharat” programme partnering with the state of Sikkim to organize cultural exchange programmes promoting their art, culture and cuisines under this initiative. The NSS has launched Sudhar-Camp, an initiative to educate slum children.*

The College has accorded top priority to environmental sustainability by taking several initiatives like installation of roof-top solar panels having installed capacity of 72 kW which was commissioned in January 2021, building an Integrated Composting Facility for producing organic manure, creating an Integrated Rainwater Harvesting System for the entire campus, switching to PNG, a greener fuel, energy efficient lighting with 80% LED lighting and 5 STAR and VRF rating air-conditioning systems etc. College has also signed a MoU with Bureau of Energy Efficiency (BEE) for Energy audits of its campus. The College Library, a key indicator and driver of academic standard of the college, was ranked the best College Library in the University in 2020 in a study published in DESIDOC Journal of Library & Information Technology, DRDO. Library has a fully digitized catalogue, a collection of more than 1,05,000 books, one of the largest in the entire University, a host of journals and magazines, separate A.C. reading rooms for teachers, students and research scholars and a Book Bank section. Sprawling campus of the College, with more than 60% green cover boasting of over 35 species of flora, lawns, playgrounds, parade ground and Botanical Garden, amphitheatre, air-conditioned Auditorium with seating capacity of 200, large departmental rooms and well equipped laboratories, separate students' common rooms for girls and boys, gymnasium, canteen, photocopy shop, Medical room, banking facility, seminar hall and spacious smart classrooms provide a healthy and active environment for all round development of our demographic dividend. For furthering ICT mediated teaching-learning pedagogy the college campus is completely Wi-Fi enabled, with 80 computers in Web Access Centre, a computer lab with 60 computers, 60 computers with Internet connectivity in the library and Computer Science and Mathematics department laboratories with 35 and 90 computers, respectively. College provides a conducive environment for comprehensive development through organization of seminars, lectures, workshops, Sports, N.S.S., N.C.C. and

other co-curricular activities with a spending of more than Rs. 22,50,000/- in 2020-21. College has many laurels and accolades in the form of gold medals in Yoga, Weight Lifting & Kick-Boxing and Inter-Archery Competition medals, a testimony to our excellence in sports. College has all three wings of NCC, with separate male and female wings in Army and Air Force, their most notable achievements being selection of best cadet for All India Guard Team during PM rally and cadets for Republic Day parade. Boasting of a rich cultural heritage, College provides infrastructure and support to the culturally active students in debating, theatre, music, fashion, dance, film making and photography to nurture their talent enabling them to win many accolades every year at the national, state and university level competitions.

Deshbandhu College provides a number of scholarships and financial aid to meritorious and needy students every year and has instituted four awards for Academic Excellence with total amount of Rs. 1,00,000/- in the memory of Lala Deshbandhu Gupta. College has a dynamic and vibrant Career-Counseling and Placement Cell with more than 60 companies visiting the campus for placements and internships this year. The Deshbandhu College promotes social inclusivity through Equal Opportunity Cell (EOC), SC/ST/OBC Cell and North-East Cell. College has done commendable work on gender sensitization and prevention of sexual harassment at work place by signing MOU with NGO POSHCA through its Internal Complaints Committee, activities under Women Development Cell and has 100 % CCTV surveillance ensuring complete safety of its students. The College and its faculty offer a holistic environment to the students for their academic, mental, physical and psychological development creating an informal, close knit, friendly and supportive environment that encourages hard work and academic achievements. India and world prepare to restart economies, protect societies and protect the poorest, then let us take time for nature. The emergence of the pandemic had shown that Humanity is placing too many pressures on the natural world. The damaging consequences are obvious. The term “New Normal” meant environmental destruction, human suffering, economic injustice, social discord, and a callous disrespect for nature and planetary boundaries; meant cutting down huge swathes of forest to plant crops, and meant grazing livestock at the expense of wildlife habitat; accelerated global warming, stressing wild species and their habitats and making humans more susceptible to zoonotic diseases; and led us to health and economic ruin, and the brink of environmental collapse. We now know that

we cannot return to normal. We need to build back better and we must realize that ***biodiversity is the foundation of human health.***

Nature, as it envisaged a number of key high-level opportunities to enhance climate action, prevent further deterioration of nature and enhance actions to protect biodiversity over the next decade. However, this ambitious global roadmap for 2020 has been overshadowed by the unprecedented crisis that the world is currently grappling with. The COVID-19 pandemic exemplifies how negative human impacts on natural ecosystems can result in widespread humanitarian, social and economic consequences across the globe (WHO, 2020, UN Environment, 2020). The need to urgently enhance the protection of biodiversity is more apparent now than ever, particularly in the context where hunger and poverty are expected to rise. The year of 2020 has become a year of reflection, opportunity and solutions - an opportunity for the world to incorporate nature and climate in recovery strategies. The following sectors or areas of Environmental-Green practices are followed by ***Deshbandhu College; University of Delhi***, is given as below:

**Green Audit/Environmental Audit-Questionnaire considered during the Audit Trail and Focusses on the Areas of Ecosystem Approaches/Environmental Feasibility and Sustainability to be followed/practiced on each of the following aspects by participating college/Institutions in Audit is given below:**

- I. Waste Minimization and Recycling;***
- II. Biodiversity and Greening the Campus;***
- III. Energy Use & its Conservation;***
- IV. Water Use & its Conservation;***
- V. Carbon Footprint (Life Style Footprint);***
- VI. Clean Air (Campus Desirable Ambient Air);***
- VII. Resource Efficiency;***
- VIII. Technological Innovations & Green Practices in Education;***
- IX. Environmental Legislation;***
- X. Social Welfare & Community Outreach.***

## **GREEN AUDIT/ENVIRONMENTAL AUDIT:**

India is alarming SDG 6 in different regions of the country and contributing towards the achievement of SDGs 7 (Affordable and Clean Energy), SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation and Infrastructure), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action) and SDG 17 (Partnerships for the Goals). Indian economy is one of the fastest-growing in the world, but after recording GDP growth of around 7-8 percent for several years, there has been a comparative slowdown. India also faces acute environmental challenges climate variability, poor air quality, over-exploitation of resources that have also adversely affected productivity and economic performance, resulting in increased poverty, unemployment and poor health. India has worked to tackle this through several policies and programmes, making efforts to support achievement of the SDGs and its NDCs. Specific to green economy, India has embraced a large-scale, integrated economy-wide approach, including circular economy and sustainable consumption and production. Aimed at enhancing existing initiatives on a national and sub-national level, India is enhancing efforts to increase resource efficiency to control demand and supply chain by people of India. **The audit has been carried out for the following ten sectors or areas of Environmental-Green practices which are being followed by Deshbandhu College are given in the below thematic areas:**

.



## I. WASTE MINIMIZATION AND RECYCLING

The following Environmental-Green practices are being followed by Deshbandhu College, Kalkaji, New Delhi is as below:

1.	Does your college generate any waste? If so, what are they?	Yes, Solid waste, Canteen waste, paper, plastic, Horticulture Waste etc. However, managed through MSW Rules, 2016 with the help of Municipal Corporations. (ANNEXURE-I of Annexure Report)			
2.	What is the approximate amount of waste generated per day? (in Kilograms/month/year) (approx.)	Bio-degradable	Non-Biodegradable	Hazardous	Electronics waste, Chemical discards & Others
		Total* =3750 kg per year *=Apprx. 150 working day	Not Quantified, however, managed through authorized vendors.	Not Quantified, however, managed through authorized vendors.	Not Quantified, however, managed through authorized vendors.
3.	How the waste generated in the College is managed?	<ol style="list-style-type: none"> <li>1. Composting</li> <li>2. Recycling</li> <li>3. Reusing</li> <li>4. Segregation</li> <li>5. Incineration.</li> </ol> (ANNEXURE-I of Annexure Report)			
4.	Do you use recycled paper in College?	Yes, the College has a paper recycling machine for the recycling purpose. (ANNEXURE-I of Annexure Report)			
5.	Do you use reused paper in College?	Yes, recycle papers are used for various institutional activities such as notifications, Official communication, study materials etc. (ANNEXURE-I of Annexure Report)			
6.	How would you spread the message of recycling to others in the community? Have you taken any initiatives? If yes, please specify.	Done in locality for awareness of resource crunches. (ANNEXURE-I of the Annexure report)			
7.	Can you achieve zero garbage in your institute? If yes, how?	Possible through waste management plan. (ANNEXURE-I of the Annexure report)			
8.	How do you manage Hazardous and E-waste?	Possible through Authorized Vendors (ANNEXURE-I of the Annexure report)			

9.	Is there any awareness programme on waste minimization being carried out by your college?	Yes, committees have been formed on each category of waste and College periodically carried out awareness programmes. (ANNEXURE-I of the Annexure report)
10.	Are your college staff and students aware about MSW, E-Waste, Hazardous Waste Rules? 2016, 2011, 1989, respectively?	Yes, the College staff and students are well aware about these Rules. (ANNEXURE-I of the Annexure report)

The total strength of students is 5128, including boys, 3507, and girls, 1621 in three-year undergraduate and postgraduate programs. The strength of the teaching staff is 219 and the non-teaching staff is 136. College and college administration managed some of the waste through waste treatment systems such as composting pits and composting machines. The compost is being used for the manuring of the gardens, parks, plants in pots, etc. The departmental laboratories of our college generate fewer toxic chemicals during biology experiments. Chemicals or stained water (as waste) which is released during practical is not directly drained into the drain, in fact, the wastewater and waste are given to an agency that takes care of the same. In addition, the College is managing this kind of waste to start a waste segregation and recycling campaign. The College administration/group of people/staff sensitize the community to try to adopt a waste hierarchy by giving emphasis on prevention, reduction, reuse, recycling, recovery, and disposal, with prevention being the most preferred option and the least disposal at the landfill site. The awareness is being spread throughout the college campus through posters for waste sensitization, lectures, and orientation of students for sensitization of waste program for minimizing the disposable utensils in the canteen/college premises. However, our college is trying to achieve zero garbage production by following the waste hierarchy of prevention, reduction, reuse, recycling, recovery, and disposal.

The College is striving to limit waste creation/generation in all possible ways, including reducing the procurement of new materials, reusing and recycling existing materials, and, if this is not possible, disposing of garbage in a manner that has the least environmental impact (through authorized vendors). The usage of single-use plastic is prohibited on our campus. The Waste containers/dustbins are positioned where they are needed. The solid waste from canteens, classrooms, washrooms, offices, laboratories, and gardens is being disposed of and hazardous and e-waste have been handled, transported, and disposed of by the authorized vendors. Further, the hazardous chemicals and toxic hygienic compounds will be used as little as possible. The College had committed to a comprehensive recycling programme as the final stage in solid waste reduction and a way to turn waste into a resource. The College is engaged in the 3Rs (Reduce, Reuse and Recycle) of environmental friendliness in a systematic way. Nevertheless, the paper waste generated on the campus is being collected and recycled in collaboration with authorized waste paper recyclers. Moreover, the College is developing a

technology-centric educational and administrative strategy to reduce solid waste. Finally, the College is updating the library's e-books and e-Journals collection wherever it is required to reduce the need for printed books. The college authorities are encouraging our students and teachers to utilize email to submit assignments instead of hard copies to further minimize the paper waste. Also, our Eco-club and NSS team members are spreading awareness among the students regarding managing food waste and strategies for reducing it. The College is putting its maximum efforts in minimizing the usage of packaged foods, as well as promoting the habit of reusing and recycling non-biodegradable items. Moreover, our college is organizing solid waste management workshops for students as well as laboratory staff members. Taking into consideration all measures for e-waste management, the college assures that its technological use and e-waste output have no negative influence on the environment. The college intends to work toward the following goals:

- 1) Encouraging e-waste management initiatives at the departmental and societal levels;
- 2) Working with e-waste recycling firms to recycle electronic waste;
- 3) More arrangements for the disposal of institutional e-waste;
- 4) Awareness among students about e-waste reduction and environmentally responsible e-waste disposal techniques;
- 5) Developing awareness programmes and workshops for the proper disposal and minimization of waste generated in the college campus.

**Additional information on WASTE MINIMIZATION & RECYCLING is attached to Annexure-I of the Annexure report.**

## II. BIODIVERSITY AND GREENING THE CAMPUS

The following Environmental-Green practices are being followed by Deshbandhu College is as below:

1.	Are there any Biodiversity or Greening activities in your college?	Yes, College is actively participating in Greening and Biodiversity Conservations. (ANNEXURE-II of ANNEXURE REPORT)
2.	Is there any garden in your college? How much area is being covered?	Yes, The Deshbandhu College has a total area of approximately 4,35,600 sq. ft, and out of this, approximately 1,52,000 sq. ft is devoted to greenery in the form of gardens, biodiversity park, lawns, bonsai garden, amphitheater, meditation center, botanical garden, aromatic garden, rock garden etc.  (ANNEXURE-II of ANNEXURE REPORT)
3.	Do the students/college participate in the campus greening and biodiversity conservations?	Yes, the students/college practices participatory biodiversity conservation programmes.  (ANNEXURE-II of ANNEXURE REPORT)
4.	Total number of Plants (Herb, Shrubs, Trees, Medicinal) in the Campus.	The total number of trees are more than 650 in which 250 are in growing stage, while more than 400 are fully grown trees. In addition to the previous greenery in campus, last year, more than 6000 plants were introduced in the college in the form of trees, herbs, shrubs and succulents procured from nursery or regenerated through vegetatively. However, final statistics of Trees -623 approx, Shrubs-455 approx, Herb's 88- approx and 70 succulent plants are present.  (ANNEXURE-II of ANNEXURE REPORT)
5.	Name of some important plant's variety exists in your college campus. (Trees, vegetables, herbs, etc.)	Main plants that can grow are: Ashoka tree, Avla, Mango, Arjun tree and Bougainvillea tree, Duranta tree, Jasmine tree, Jatropha tree, Moss rose, Vinca are the major plant variety present in the campus.  (ANNEXURE-II of ANNEXURE REPORT)
6.	Is the College/University campus have any Horticulture Department/Garden committee/Eco-club?	College has a functional garden committee and participates in the Eco-club programme of Govt. of NCT Delhi. (ANNEXURE-II of ANNEXURE REPORT)
7.	Number of Tree Plantation drives organized by college per annum. (If Any)	Yes, Plantation drives are regularly organized and trees and shrubs planted. (ANNEXURE-II of ANNEXURE REPORT)

8.	Is there any medicinal garden in your college?	Yes, college has a medicinal garden with diverse number of plant varieties those are known for their medicinal usage.  (ANNEXURE-II of ANNEXURE REPORT)
9.	Whether College is using compost or bio-fertilizer as a part of green farming?	Yes, no pesticides are being used in the College Garden. Compost is being generated by a compost machine and a vermin-compost plant is used for the gardening purpose.  (ANNEXURE-II of ANNEXURE REPORT)
10.	Does College organize a community awareness programme/Outreach workshops/Online programme for biodiversity conservation?	Yes, Eco-club of <b>Deshbandhu College</b> is engaged with the organization of tree plantation programme, Painting Competition, Rallies, Street Play, Online seminar, Lecture series, and online conferences on Biodiversity conservation. (ANNEXURE-II of ANNEXURE REPORT)

The **Deshbandhu College** has a total area of approximately 4,35,600 sq.ft, and out of this, approximately 1,52,000 sq.ft is devoted to greenery in the form of gardens, biodiversity park, lawns, bonsai garden, amphitheater, meditation center, botanical garden, aromatic garden, rock garden etc. This green area covers more than 35% of the total area of the campus. The plant species richness in the campus is approximately as follows: Trees – 60, Shrubs 50, Herb’s 100. The total number of trees are more than 650 in which 250 are in growing stage, while more than 400 are fully grown trees. In addition to the previous greenery in campus, last year, more than 6000 plants were introduced in the college in the form of trees, herbs, shrubs and succulents procured from nursery or regenerated through vegetatively. Some of the tree plants that are growing in the campus are *Aegle marmelos*, *Albizia*, *Alstonia*, *Annona squamosa*, *Aurocaria*, *Azadirachta indica*, *Bambusa vulgaris*, *Bassia scoparia*, *Bauhinia variegata*, *Bombax ceiba*, *Bombax ceiba*, *Carissa carandas*, *Caryota urens*, *Cascabela thevetia*, *Cassia fistula*, *Ceiba speciosa*, *Citrus limon*, *Citrusx sinesis*, *Crassula ovata*, *Cycas revoluta*, *Dalbergia sissoo*, *Delonix regia*, *Dyopsis lutescens*, *Eucalyptus mannifera*, *Euphorbia margalidiana*, *Ficus*, *Hamelia patens*, *Hibiscus*, *Jacaranda mucakaranda*, *Jatropha curcas*, *Juniperus communis*, *Justicia adhatoda*, *kigelia pinnata*, *Lagerstomia pink*, *Livistona chinensis*, *Madhuca longifolia*, *Madhuca longifolia*, *Mangifera Indica*, *Millettia pinnata*, *Mimusops elengi*, *Mimusops elengi L.*), *Moringa oleifera*, *Morus*, *Murraya koenigii*, *Murraya paniculate*, *Neolamarckia cadamba* and *Nerium*.

The college has a dedicated botanical garden with lush green plants. It has a small pond for aquatic plants. Also, it has herbal garden, mushroom culturing center, and a nursery. Although botanical

garden is being utilized as a nursery, but it is also used for various academic and research activities by different departments of sciences, and specifically for Botany department. The college campus has displayed scientific names of the trees on the campus. The Deshbandhu College also has a medicinal garden with an area of 200 sq. ft. In order to manage the huge amount of litter in the campus, the college has composting unit, which is being utilized for the compost production that is utilized for the growth of plantation.

The Deshbandhu college regularly conducted programs to sensitize students towards, environmental and ecological issues and involve students for plantation drives. The College Eco club, NCC, NSS, and students of Botany department are actively participating in the campus for various environmental, ecological, and social outreach activities.

The college is very sensitive toward nature and its conservation, the plants species richness is providing a good habitat to various birds, insects and some mammalian diversity, which is a good indicator of health environment. Several bird species like House sparrows, Babblers, Owls, Tree pie, Crow etc are common in the campus. The bird nests along with water have been placed in many locations to increase the number of bird visits. The regular plantation drives are conducted at the campus to improve the present greenery in the campus. The green audit concluded that the Deshbandhu College Delhi University has taken all the eco-friendly measures for making the campus green and environmentally safe and sound. All the students, staff, faculty, and administration are working to achieve sustainable goals. *Eco Club of Deshbandhu College, University of Delhi* works in association with NSS, NCC, and building and infrastructure committee, which is multidimensional, highly active society that runs in coordination with the department of environment, Govt. of NCT of Delhi. The Eco Club is playing an important role in creating environmental awareness amongst the future generation. Eco club is a group of teachers, students and non-teaching staff members who are dedicatedly working to make the campus less wasteful, raising awareness for eco-friendly causes, and promoting environmentally friendly habits like reducing, reusing, and recycling. The main objectives of the eco-club include:

- 1) Motivate the students to keep their surroundings green and clean by undertaking plantations of trees.

- 2) Sensitize the students to minimize the use of plastic bags, not to throw them in public places as they choke drains and sewers, cause water logging and provide a breeding ground for mosquitoes. Eco Club is also organizing tree plantation programs, and awareness programs such as quizzes, essays, painting competitions, rallies etc. regarding various environmental issues.
- 3) Build an attitude to help individuals and social groups acquire a set of values and feelings of concern for the environment and the motivation for actively participating in environmental implementation and protection.
- 4) Teach skills to students to help individuals to identify and solve environmental problems.

**Additional information on BIODIVERSITY AND GREENING THE CAMPUS as pieces of evidences are attached to Annexure-II, and Annexure report.**

### III. ENERGY USE & ITS CONSERVATION

The following Environmental-Green practices are being followed by Deshbandhu College is as below:

1.	How much energy is used and saved by the College (in KW per month) per day/per month/per year?	The Deshbandhu College uses energy <b>KWH</b> in year.  Annual energy used 468688 KW hour per year (ANNEXURE-III of ANNEXURE REPORT)
2.	List ten ways that you use energy in your college. (Electricity, LPG, firewood, others).	Electricity saves by use of CFL/LED bulbs for illumination, LPG saves by use of Pressure cookers for cooking food. Alternate source of energy i.e. Solar Heater Installed.  (ANNEXURE-III of ANNEXURE REPORT)
3.	Are there any energy saving methods employed in your college? If yes, please specify. If no, suggest some methods.	Yes, sign boards are displayed at various locations to inform students and staff about energy savings. Use of natural lights and natural ventilation are promoted. Use of energy efficient devices such as five star air conditioner, LED and solar heaters are being used.  (ANNEXURE-III of ANNEXURE REPORT)
4.	How many CFL/LED bulbs has your college installed? Mention energy used by LED bulbs?	Total Conventional bulbs are replaced by LED/CFL Lights. (ANNEXURE-III of ANNEXURE REPORT)
5.	Are any alternative energy sources employed / installed in your college? (Photovoltaic cells for solar energy, windmill, energy efficient stoves, etc.) Please Specify.	Yes, photovoltaic cells for solar energy are being used as a source of renewable energy through a solar PV establishment ( <b>75 KW</b> ) already commissioned by college. An additional 40 KW Solar PV is scheduled to installed that is expected to meet the energy demand of the college. (ANNEXURE-III of ANNEXURE REPORT)
6.	Do you run “switch off” mock-drills at college?	Yes, the College regularly organizes mock drills for the switch off campaign. (ANNEXURE-III of ANNEXURE REPORT)
7.	How much energy (per month) is being saved by the use of efficient light source replacement by Deshbandhu College?	Yes, <b>90,000 KWH annually is anticipated for savings.</b> (ANNEXURE-III of ANNEXURE REPORT)
8.	Does the classroom have sufficient solar light illumination? Provide details.	Yes, National Standard for interior illumination for educational institute is 200/300/500 for lecture theatre, the Deshbandhu College complying as per the International / Indian standard IS-3646 (Part-I), 1992 (Range of illumination in lux should be 300/500/750 lux).
9.	Does the College organize any workshops/ seminars/ campaigns to educate students and staff?	Yes, the College is involved in these activities.  (ANNEXURE-III of ANNEXURE REPORT)



10.	Does your machinery (TV, AC, Computer, printers, etc.) run on standby modes most of the time?	Yes, in practice.  (ANNEXURE-III of ANNEXURE REPORT)
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The ***Deshbandhu College*** uses energy for electricity (Lights, Fans, ACs, Computers, Security Camera, Microwave, Refrigerators), Petrol (Generator) and electric stove, kettle, microwave, firewood, diesel and others. The energy saving methods employed in the College such as energy saving drives using posters for saving energies displayed. The energy generated from panels is 75 KW. All the air conditioners installed are of energy stars with power savings. The refrigerators and most of the equipment in the laboratories also have star ratings with less energy consumption. ***Deshbandhu College*** has given much importance to the use of renewable energy sources. The solar photovoltaic units supplying energy for street lights and solar water heaters have been installed in the campus. The awareness on energy conservation was regularly conveyed to staff and students to make them more responsible. Small activities like switching off lights, fans and computers not in use were completely practiced by all the members of College. The temperature of the air conditioners in the campus was set at 24°C during peak summer to reduce energy consumption without affecting the comfort. The day scholar students and staff are mostly relying on the public transport services i.e. Metro and buses for their transportation which saves the fuel consumption and also reduces the carbon emissions from private vehicles. This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliances, and vehicles. Energy use is clearly an important aspect of the campus sustainability and thus requires no explanation for its inclusion in the assessment. An old incandescent bulb uses approximately 60W to 100W while an energy efficient light emitting diode (LED) uses only less than 10 W. Energy auditing deals with the conservation and methods to reduce its consumption related to environmental degradation. It is therefore essential that any environmentally responsible College examine its energy use practices.

**Additional information with evidential proof on ENERGY USE & ITS CONSERVATION are attached at Annexure-III of Annexure report.**

#### IV. WATER USE & ITS CONSERVATION

The following Environmental-Green practices are being followed by Deshbandhu College is as below:

1.	What are the sources of water in Deshbandhu College?	<p>1) Supply from Delhi Jal Board;                  2) Groundwater;                  3) Rainwater Harvest, (Rainwater that sink into ground)</p> <p>(ANNEXURE-IV of ANNEXURE REPORT)</p>
2.	List source & uses of water in your college?	<p>Source:                  Borewell, MCD supply, and Rainwater</p> <p>Uses:                  1. Drinking                  2. Gardening                  3. Kitchen and Toilets                  4. Washroom and Construction.</p> <p>(ANNEXURE-III of ANNEXURE REPORT)</p>
3.	Daily quantity of water uses per day?	<p>On working days= 41, 275 liters per day</p> <p>(ANNEXURE-IV of ANNEXURE REPORT)</p>
4.	How does your college store water? Are there any water-saving techniques followed in your college?	<p>Yes, Overhead water tanks and underground water tanks are installed for the storage of water. Water conservation techniques such as rainwater harvesting, and recycling is in practice. Three rainwater harvesting tanks have harvested 5, 85, 446.4 cubic ft. of water in the year 2021 that accounting for 36% of rainwater precipitated on the college campus.</p> <p>(ANNEXURE-IV of ANNEXURE REPORT)</p>
5.	Are there signs reminding students/ staff to turn off water taps?	<p>Yes</p>
6.	Write down ways that could reduce the amount of water used in your college and are being practiced.	<p>Basic Four ways to reduce the use of water:</p> <p>1. Close the taps after usage;                  2. Maintenance and monitoring of valves in supply system to avoid overflow,                  3. Maintain leakage and spillage;                  4. Water Conservation awareness for students.                  5. Hoses with Nozzle guns and                  6. Low flow taps</p> <p>(ANNEXURE-IV of ANNEXURE REPORT)</p>

7.	Water use from the College water meter (in units) for one month /year? And annual water charges paid for water uses?	Average Consumption of water=900 KL (Approx.), per month. Average charges Rs. 1,50,000/- per month (ANNEXURE-IV of ANNEXURE REPORT)
8.	Does your college harvest rainwater?	Yes, modern rainwater harvesting systems are available. Overhead water tanks and underground water tanks were installed for the storage of water. Water conservation techniques such as rainwater harvesting, and recycling is in practice. Three rainwater harvesting tanks have harvested 5, 85, 446.4 cubic ft. of water in the year 2021 that accounting for 36% of rainwater precipitated on the college campus. (ANNEXURE-IV of ANNEXURE REPORT)
9.	Is there any water recycling system or treatment of water?	Yes, a joint STP between Ramanujan and Deshbandhu college which is functioning in Ramanujan College. The flow of sewerage water is given to Ramanujan college for the sewerage treatment purposes.
10.	Does College organize workshops/ conferences/ training/seminars for the students and College staff for water management and conservation?	Yes, the College administration, eco-club and NSS routinely organize various conferences, seminars and awareness programs for water conservation and management. (ANNEXURE-IV of ANNEXURE REPORT)

The ***Deshbandhu College*** of Delhi University uses the water in various ways such as drinking, gardening, kitchen, toilet, washroom, and renovation purposes. The Deshbandhu College uses 41, 275 lit. per day water as basic use. However, the total use of water on working days is 41 kiloliters per day. The College is practicing reduction and minimization of water use. Furthermore, the College is also practicing in prevention and leakages of water. There are four basic ways adopted by the College to prevent and minimize water wastage in the College:

1. Close the taps after usage;
2. Maintenance and monitoring of valves in supply system to avoid overflow,
3. Maintain leakage and spillage;
4. Water Conservation awareness for students.

It is revealed that record water use from the College water meter for one year is being practiced. Monthly water charges paid for water usage are Rs 1,50,000 per month (average). The Deshbandhu College is also practicing a modern rainwater harvesting system and there are three rainwater harvesting units, and along with soiled area (area which is not covered with concrete), and due to

topography and created slopes could sink approximately 1,00,00000 liters of rain water into the ground during last year. (Total area of campus =40468 sqm, last year annual rain fall= 1.17 meter. Total rain water collected= 4,73,48,000 liters. On an average, 30 to 36% rain water can sink into the ground. Besides that, the College organizes various conferences and seminars on environmental challenges and sustainable development.

Water is a natural resource for all living beings. Different forms of water are freely available in nature, but for human use drinking water is less readily available. We need to use water wisely to ensure that drinkable water is available for all, now and in the future. A small drop from a tap can waste more than 180 liters of water per day and a lot of water we waste in toilets. Depletion of Aquifers and water contamination is taking place at unprecedented rates. Therefore, it is crucial for an institution should examine its water usage. Water auditing is conducted for the evaluation of facilities for raw water intake, to regulate the facilities for water treatment and reuse. The concerned auditor should investigate the relevant method which can be adopted and implemented to balance the demand and supply of water. It is therefore essential that any environmentally responsible university/ College/ institution examine its water use practices.

**Additional information with evidential proof on Water use and its Conservation is attached at Annexure-IV of Annexure report.**

## V. CARBON FOOTPRINT (*Lifestyle Carbon Footprints*)

The following Environmental-Green practices are being followed by Deshbandhu College is as below:

1.	Total Number of vehicles used by the stakeholders of the College (per day). Number of visitors with vehicles per day?	Based on the survey conducted on 2,224 participants, 71.9% uses public transport to reach college campus while 21.4% uses bicycle or walk.  Rest participants prefer private vehicles or car pooling.  (ANNEXURE-V of ANNEXURE REPORT)
2.	No. of two wheelers used by the staff members and students? (Annual average of fuel used).	No information provided  (ANNEXURE-V of ANNEXURE REPORT)
3.	No. of cars used per day by the staff and students of the College? (Annual average of fuel used)	652 private vehicles are in use, out of which 34.7% users rely on CNG, 37% on petrol, 10% Diesel, 18% on Battery vehicles.  (ANNEXURE-V of ANNEXURE REPORT)
4.	No. of cycles used by the staff members and students and no. of persons using common (public) transportation?	Based on the survey conducted on 2,224 participants, 71.9% uses public transport to reach college campus while 21.4% uses bicycle or walk.  (ANNEXURE-V of ANNEXURE REPORT)
5.	Number of generators used every day (hours). Give the amount of fuel used per day? (monthly average of fuel used)	02 generator rarely used 10 liters per month
6.	Number of LPG cylinders used in the canteen (Give the amount of fuel used per month and amount spent).	Number of LPG cylinders used in the canteen, not provided.  (ANNEXURE-V of ANNEXURE REPORT)
7.	Quantity of kerosene/diesel/petrol used in the canteen/labs (Give the amount of fuel used per month and amount spent).	Quantity of kerosene/diesel/petrol used in the canteen/labs, not provided.
8.	Amount of taxi/auto charges paid per month for the transportation of office goods to the College? (Please state the distance traveled in kilometers).	No information available
9.	Use of any other fossil fuels (Coal, wood etc.) in the College (Give the amount of fuel used per day and amount spent).	Fossil fuels are prohibited in the College.  (ANNEXURE-V of ANNEXURE REPORT)

10	Whether air conditioners used in Classroom, Staff room, faculty room?	All five star rated air conditioners used.
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**Carbon Foot Print (Lifestyle Carbon Footprints-Applicable for Green Campus/College):**

India is emerging countries in order to capture a range of different consumption contexts and contributing in Green House Gases (GHG) and ultimately to Climate Change through **Lifestyle Carbon Footprints as below:**

- 1) **\*1Nutrition:** intake of all foodstuffs and beverages consumed at home and outside the home, e.g., vegetable and fruit, meat, fish, dairy, cereal, alcohol and nonalcoholic beverages.
- 2) **Housing:** housing infrastructure and supply of utilities, e.g., construction, maintenance, energy use and water use.
- 3) **Mobility:** use of owned transport equipment and transportation services for commuting, leisure, and other personal purposes, e.g., cars, motorbikes, public transport, air travel, bicycles.
- 4) **Consumer goods:** goods and materials purchased by households for personal use not covered by other domains, e.g., home appliances, clothes, furniture, daily consumer goods.
- 5) **Leisure:** leisure activities performed outside of the home, e.g., sports, culture, entertainment, hotel services.
- 6) **\*2Services:** services for personal purposes, e.g., insurance, communication and information, ceremonies, cleaning and public baths, public services.

\*1=Emissions from ingredients of food taken out of home are included in nutrition, whereas direct emissions from leisure performed at home are included in housing.

\*2=Public services covered by government expenditure are excluded from lifestyle carbon footprints.

***Lifestyle Carbon Footprints***

‘Carbon footprint’ refers to GHG emissions directly and indirectly caused by activities or products throughout their lifecycle, from a consumption perspective, and can be calculated for products as well as daily activities of individuals or organizations (Wiedmann and Minx 2008). The focus of this task is on daily activities of individuals determined by the choices they make on ways of living. Finally, ‘lifestyle carbon footprint’ is defined as the GHG emissions directly emitted and indirectly induced from household consumption, excluding those induced by government consumption and capital formation. As the Paris Agreement does not limit the GHGs to be reduced, non-CO2 emissions also need

to be considered due to their higher global warming potential and related lifestyle and consumption choices. Therefore, this also considers emissions of methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydro-fluorocarbons (HFCs), per-fluorocarbons (PFCs), and sulphur hexafluoride (SF<sub>6</sub>), as in most global carbon footprint analysis literature and the UNEP Emissions Gap Report 2018 (UNEP 2018). This estimates carbon footprints using carbon intensity data covering these six gas species if the types are explicitly mentioned, or GHG intensity data rather than CO<sub>2</sub> data, if not.

### ***Footprint of products & Organizational footprint***

Green House Gases directly and indirectly emitted from the production, distribution, use, and disposal of products, including those embedded in imported parts and products. This type of measurement is used for carbon footprint labeling and comparison of two or more types of options of products or processes, and is typically based on a bottom-up process analysis of life cycle assessment (LCA). The specification for this type of measurement is also published as International Organization for Standardization (ISO) 14067 (ISO 2018a). GHGs emitted from direct activities of organizations (scope 1), sourcing of energy (scope 2), and other indirect emissions through value chains including production, distribution, use, and disposal of products sold (scope 3). The standards for this type of measurement include ISO 14064-1 (ISO 2018b) and GHG Protocol (Greenhouse Gas Protocol 2011), and this measurement is typically based on the hybrid method of bottom-up process analysis LCA and top-down input–output (I/O) analysis–based estimation. GHGs directly emitted from activities of households and governments located in a country or city and those indirectly emitted from the final demands of those actors and capital investment including production, distribution, use, and disposal of purchased products and services including those embedded in trades. This type of measurement is typically based on the top-down I/O analysis method. A closer examination of lifestyle carbon footprints based on physical consumption units revealed several hotspots. Focusing efforts to change lifestyles in relation to these areas would yield the most benefits: meat and dairy consumption, fossil-fuel based energy, car use and air travel. The three domains these footprints occur in – nutrition, housing, and mobility-tend to have the largest impact (approximately 75%) on total lifestyle carbon footprints. Based on the domain-specific gap analysis with the targets, the required footprint reductions in the case of developed countries are at least 47% in nutrition, 68% in housing, and 72% in mobility by 2030 and over 75% in nutrition, 93% in housing, and 96% in mobility by 2050. Some of

the hotspots such as car use and meat consumption are common among case countries, while others are country-specific, such as dairy consumption in Finland and fossil-fuel based electricity in Japan, suggesting we need to consider local contexts and tailor-made solutions.

### **Key Approaches for Low-carbon Lifestyles**

This estimates lifestyle carbon footprints based on the amount of consumption and the carbon intensity of the items. This adopts three main approaches for reducing these amounts: absolute reduction, modal shift, and efficiency improvement. These approaches are in line with analysis and recommendations from related literature (2008; 2011; 2018). ‘Absolute reduction’ (Akenji et al. 2016) refers to reducing the amount of consumption as opposed to raising environmental efficiency. It is sometimes labeled as ‘sufficiency’ (Figge, Young, and Barkemeyer 2014). In this study, absolute reduction refers to reducing amounts of physical consumption but not necessarily expenditure. ‘Modal shift’ (Nelldal and Andersson 2012) is typically discussed for transportation, but in this study was expanded it to incorporate other domains such as food types and energy sources and call it ‘consumption mode’.

This audit focuses on the lifestyle carbon footprint, meaning the carbon footprint of an average household in an area/location/city/country, including its direct emissions from the use of fuels and indirect emissions embedded in products and services purchased. This can be considered as a household version of the organisational carbon footprint or household demand part of the footprint of countries or cities. The College has adopted a carbon reduction strategy to undertake this task. Carbon Footprint refers to the potential climatic impact (Global Warming) of the Greenhouse Gases (GHG) emitted directly or indirectly due to an organization’s activities. A Carbon Footprint Disclosure of any educational institution is very important to understand such that its key emission sources can be identified and necessary mitigation measures can be adopted for carbon reduction. In today’s date, very few Colleges disclose their carbon emissions. Planning, collection of data and estimation of CO<sub>2</sub> following with suggestive measures for reduction. This task was initiated with understanding the intent of management, and the core team was formulated composed of teachers and students from different departments. Several site visits and face to face interactions were done with the departments to collect the required data. The study included extensive research on latest emission factors for computing the footprint. Both qualitative and quantitative data was collected from the College and presented in



**Annexure V.** An online survey was conducted for capturing data on commuting. The survey was carried out for a month and was rolled out to the teachers, non-teaching staff and students. The following outcomes revealed from Carbon Footprint task/work carried out by the Deshbandhu College, University of Delhi:

- 1) **GHG Information Management System:** A carbon management team can be established consisting of representatives from teaching staff, students and other non-teaching staff of various departments.
- 2) **Energy and Environmental Policy Formulation:** An energy environmental policy already formulated by the Management to commit to adopt sustainable practices at the campus. The policy should be well communicated & displayed across the campus;
- 3) **Green events:** The activities carried out at the campus should be performed in light of low carbon emissions. The team may ensure low carbon products and strategies are adopted for various events;
- 4) **Setting of reduction targets:** Based on the baseline and available resources, the College may develop its short / medium / long term reduction targets and plans to achieve the targets;
- 5) **Awarding and labelling Departments:** Eco-club and other department with minimum carbon emissions should be rewarded with eco-friendly labels/batches/medals/trophies/certificates to motivate other departments to work towards the same;
- 6) **Eco suggestion box:** A suggestion box can be placed at the campus inviting innovative ideas from students/teachers/other staff members for carbon reduction.

**Additional information on CARBON (Lifestyle) FOOTPRINT is attached at Annexure-V of Annexure report.**

## VI. CLEAN AIR (CAMPUS DESIRABLE AMBIENT AIR)

The following Environmental-Green practices are being followed by Deshbandhu College is as below:

1.	Are the Rooms in Campus being well ventilated?	Yes				
2.	Window floor ratio of the Rooms	Very Good				
3.	What is the ownership of the vehicles used by your college? (Please Tick only one)	Yes				
		✓	Operator-owned vehicles			
			college -owned vehicles			
			A combination of campus-owned and operator-owned vehicles			
4.	Provide details of school-owned motorized vehicles?	<b>Buses</b>	<b>Cars/ Vans</b>	<b>Two Wheelers (Scooter/Motor Bikes) etc.</b>	<b>Other</b>	<b>Total</b>
	No. of vehicles					
	No. of vehicles more than five years old	--	--	--	--	--
	No. of Air-conditioned vehicles	--	--	--	--	--
	PUC done	--	--	--	--	--
5.	Specify the type of fuel used by your school's vehicles:	<b>Buses</b>	<b>Cars/ Vans</b>	<b>Two Wheelers (Scooter/Motor Bikes) etc.</b>	<b>Other</b>	<b>Total</b>
	Diesel	--	--	--	--	
	Petrol	--	--	--	--	
	CNG	--	--	--	--	
	LPG	--	--	--	--	
	Electric	--	--	--	--	
6.	Air Quality Monitoring Program (If Any)	Yes, Monitoring is being done by Government Laboratory				
7.	Students suffer from respiratory ailments? (If Any)	No, however, College has created a good green buffer to provide clean air/good air for their health.				
8.	Details of Genset	Yes, one silent DG Set The capacities of DG's are 125 KVA (Compliance of EPA, 1986)				
9.	Does the College ban on biomass	Yes				

	(Horticulture or Solid waste) burning?	
10.	Does the College follow Construction and Demolition Rules, 2016?	Yes. However, construction activities have stopped. Preventive measures to control dust are being taken when the activities are on.

Deshbandhu College has adopted green rating building norms for CLEAN AIR Rooms (including classrooms and common rooms): all the rooms in the campus, including the classrooms have ample good provision for admission of air and natural light, thereby maintaining a good ventilation. There are a minimum of two windows, two doors and two ventilators per room (more than 1 m<sup>2</sup> in area) opening to internal (corridors) or external open spaces or both. Each block in the campus is directly open to external air at least on one side, while the inner side opens into a cross-ventilated verandah whose width is as per the NBC norms. Inner courtyards of 8x8 m<sup>2</sup> (approx.) are also present in one of the blocks. Most lengths of the external walls (except those of the newly constructed block) are lined by trees/shrubs. There is ample natural light in all the rooms, supplemented with artificial fixtures. All the rooms have efficient cross-ventilation, supplemented with electric fans (minimum 4 per room, according to size) for better circulation. ACs used in some rooms and offices are regularly serviced once annually to maintain the indoor air quality. Only dust-free chalk is used for blackboards to reduce particulate matter. Laboratories: Each of the science departments have well ventilated and illuminated laboratories. Proper storage facilities of chemicals are also installed. ACs used in computer laboratories are regularly serviced to maintain the indoor air quality. Only dust-free chalk is used for blackboards in wet labs and marker pens/projector in dry labs to reduce particulate matter. Toilets: All the toilets are also well ventilated supplemented with exhaust systems. Canteen and kitchen areas: canteen has an open space seating plan to allow good ventilation given its heavy footfall. The kitchen is well ventilated with fans and exhausts.

The real time monitoring is being carried out by Central Pollution Control Board (CPCB)/Delhi Pollution Control Committee (DPCC) in nearby area and coco-ordinates with CPCB to ensure the consistency of air quality of the area and provides technical and financial support to them for operating the monitoring station. The National Air Quality Monitoring network is being operated through various monitoring agencies and a large number of personnel and equipment are involved in the sampling, chemical analyses, data reporting etc. It increases the probability of variation and personal biases reflecting in the data; hence it is pertinent to mention that these data be treated as indicative rather than absolute. Air pollutants viz Sulphur Dioxide (SO<sub>2</sub>), Nitrogen oxides (NO<sub>2</sub>) and Respirable Suspended Particulate Matter (RSPM/PM<sub>10</sub> and PM<sub>2.5</sub>) Ozone, Ammonia etc. have been identified for regular monitoring at all the locations. The monitoring of meteorological parameters such as wind speed and direction, relative humidity and temperature was also integrated with the monitoring of

air quality. The monitoring of pollutants is carried out for 24 hours (Real time sampling for gaseous and particulate pollutants) with a frequency of 1 minute to 1 hour) to comply with the national standard. **The Air Quality Index of nearby area i.e. Kalkaji New Delhi/CR Park road is between 215-260 due to prominent high commercial as well as industrial activities in nearby Deshbandhu College (ANNEXURE-VI of ANNEXURE REPORT).**

Government of NCT-Delhi has created an Ambience Air Fund under section 31 A read with Section 17 A of the Air (Prevention & Control of Pollution) Act, which is being operated by Department of Environment to encourage the use of indigenously manufactured battery-operated vehicles i.e. four wheelers (cars), three wheelers and two wheelers (mobikes/scooters). From 7th March 2008, Rs 0.25 per litre on sale of diesel in Delhi was deposited by the Oil Marketing Companies into the Air Ambience Fund. The collected Air Ambience Fund, 29.5 % of concession in form of subsidy (15%) on base price of vehicle, road tax & registration expense (2%) and Value Added Tax (VAT) refund (12.5%) is being provided by Delhi Government on purchase of battery-operated vehicles. Massive public awareness has been and is being carried out through print media, workshops, seminars, exhibitions etc. An amount of Rs. 38.47 Crores has been collected as Air Ambience Fund in the FY 2008-09 and Rs. 30.90 crores in the FY 2009-10. About Rs. 4.12 crores (in the FY 2008-09) and Rs. 13.99 crores in the FY 2009-10 have been spent on providing 29.5 % subsidy, VAT refund and Road Tax refund for battery operated vehicles. Till date, more than 24138 mobikes and 142 Reva cars have been provided subsidy through 20 manufacturers and 110 dealers.

Besides one CAAQM station in the Shrifort area near Deshbandhu college run by CPCB, MoEF&CC, twenty-four (24) continuous ambient air-monitoring stations are being installed in Delhi NCT and they are fully functional before and after lockdown.

**Additional information on CLEAN AIR is attached at Annexure-VI of Annexure report.**

## VII. RESOURCE EFFICIENCY

Green Audit focuses on the areas of Ecosystem Approaches/Environmental Feasibility and Sustainability to be followed/practiced by the college. The main objective of Green Audit: Green audit can be a useful tool for a college to determine how and where they are using the most energy or water or resources; the college can then consider how to implement changes and make savings. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of green impact on the campus.

### **Deshbandhu College Resource Efficiency:**

Resource efficiency is the **maximizing of the supply chain, materials, staff, and other assets** that can be drawn on by a person or organization in order to function effectively, with minimum wasted resource expenses. It means using the Earth's limited resources in a sustainable manner while minimizing environmental impact. Deshbandhu College being resource efficient not only helps protect the environment and the planet's resources, it can also save your money.

#### **1. Energy efficiency and Generation** (energy efficient buildings, low carbon heating, generating your own power).

It is anticipated by Deshbandhu college to save **90,391 kWh** annually with an EPI of 26.5 kWh/m<sup>2</sup>/year with a simple payback of 6.7 years. Approximate investment required for Package 02 would be INR 51.8 lakhs. To achieve the nZEB target EPI of 15 kWh/m<sup>2</sup>-yr; 1,65,815 kWh need to be offset/generated through renewable energy sources annually. This would translate to an installed solar PV capacity of 115 kW. **Project has installed 75 kW** of Solar PV onsite. An additional 40 kW of Solar PV is recommended. Approximate cost per kWp would be INR 60,000 and area per kWp would be 10m.

#### **2. Renewable Energy Use:**

College has installed **solar power panels** on the college premise. The College is becoming one of the first Delhi University colleges to make this move to become **self-sufficient in electricity production**. To reduce carbon emission college has proposed shift in LPG to PNG since PNG is mainly methane and the ratio of carbon to hydrogen is least in methane and hence it burns up to 95% making it the cleanest burning fuel. Work is in progress and out of four, three labs have Pipe line.

3. **Water Use** (Measure your water use, Utilize Greywater/ Rainwater, Install Water saving Devices), Approximately **250 KL** of water is utilized on **monthly basis** as per the meter readings of last year. Devices to ensure efficient use of water like low flow taps, hoses with nozzle guns have been installed. The college has installed **Rainwater harvesting Plant**, an integral environment-friendly approach. This Green Practice has the double benefit of keeping the groundwater level undisturbed and charging the aquifer. Utilising **Greywater** or **Rainwater** can reduce the amount of potable water used and in turn reduce the amount of energy needed to supply your water needs. Reusing water also reduces the volume of wastewater needed to be conveyed and treated. Therefore in a way resource efficiency in terms of utilisation and generation of waste water can be efficiently met. Greywater / rainwater may be suitable for flushing toilets, doing laundry and watering plants.

4. **Waste (Reduce generating waste, Segregate, Reuse and Recycle, Special waste)**

Online mode of education has **reduced the usage of paper** to a great extent, which in turn has saved thousands of trees from being felled and reduced the carbon foot print. One of the chief objective of resource efficiency was seen achieved in the last two years of pandemic where reduction in paper waste generation was remarkable. Laboratory waste is managed and disposed in appropriate ways. **No hazardous waste is generated by the college. However**, Biodegradable (70-80 kg) and non-biodegradable waste is sorted. **Biodegradable waste (25-30 kg/day)** is sent for composting (college campus) and non-biodegradable waste is disposed off as per the safety norms. In all **Total solid waste recycled** accounted for **7,04,131 rupees** (reflected in monetary numbers).

5. **Biodiversity** (plan your grounds for local species, Buildings and Property):

**Total green land area of Deshbandhu College = 1,68,000 sq. ft. (Approx.) = 38.57 %**

The campus has more than **1230 trees** and shrubs that maintain a good air quality. Currently, efforts are being made to increase the green cover of the campus by planting more than **3397 newly-procured plants** and **1916 plants** propagated from existing ones and developing biodiversity parks. List of new plantation in Deshbandhu college since October 2021-

1. **50- Bougainvillea**

2. **1- Coconut**

3. **100- Rhoeo**

4. **50- Aglaonema**

5. **2- Agave americana**

**Considered planting native species and flowers** for pollinators as a survey by **BNHS**, Conservation Centre is conducted in the month of September for the past three years as a part of the Butterfly Census program under the **Bombay Natural History Society Conservation Education Centre (BNHS-CEC)**, Deshbandhu College campus was selected as one of the survey sites for the Delhi Butterfly Census. During the butterfly survey it was found that Deshbandhu College campus harbors a good number of Butterflies among the college campuses of Delhi University, **indicating the healthy flora/environment** of our college campus. Students were inspired to grow more such plants in the campus and near-by areas to attract more and more of butterflies.

**6. Materials** (Recycled materials, Efficient building design and construction)

Building works, repairing and renovation carried out in college during the last two pandemic years had **minimal impacts on habitats and the local environment** in terms on concrete generation and air pollution. No trees or flora was disturbed during the construction work. Excavated Rock material approximately **2200 cubic metre** was utilized in construction of Biodiversity Park. Aerated corridors well ventilated and classrooms well equipped with windows in order to allow natural air and sunlight to enter the rooms in new building shows efficient building designs harboured by college. There are a minimum of **two windows, two doors and two ventilators** per room (more than 1 m<sup>2</sup> in area)

**7. Transport** (Car Park, Low emission vehicles, Travel Plans for staff)

According to the survey done in our college for mode of Transport, approximately **72%** of the total number are using **Public transport** as mode of transport thereby reducing a lot amount of carbon footprint in the atmosphere. Also, the carbon emission on an average in parking area of campus is found to be **120 g CO<sub>2</sub>/km**.

**Additional information on Resource Efficiency is attached at Annexure-VII of Annexure report.**

### ***VIII. Technological Innovations & Green Practices in Education:***

The following of Environmental-Green practices are being followed by Deshbandhu College is as below:

1.	What Technological and Innovative teaching and learning process are applied by the college to minimize consumption of resources?	Yes, Deshbandhu college is carrying out online courses, teaching aids, educational software (Microsoft teams, Zoom, Google meet, Quizzes etc.) social networking tools (What App, Telegram, Facebook, Twitter etc.) replaced the traditional chalk and board method of teaching and learning.
2.	Does college integrate ICT tools for interactive?	Yes, Various ICT tools such as smartboards, projectors, smart TVs, laptops, pen drives, hard discs etc. are used in the college for the development of course material, delivering and sharing content with the students, academic research. Furthermore, these tools have been also helpful in the administrative work of the college.
3.	Does the College use innovative solutions for reduction of paper wastes?	E-resources (E-magazine, E-books and E-journals) have served as a rich source of information for students during the pandemic times and they continue to be equally popular amongst students even after the pandemic.
4.	Does the college have implemented any innovative solutions for management of construction and demolition waste?	Yes , The has successfully converted waste (C&D) into resource. The earth material and construction waste has been utilized for the development of unique kind of green belt and Biodiversity Park. The green belt and Biodiversity Park of the College serves the dual purpose of providing a buffer / barrier between the sources of pollution from the surrounding areas. It helps to attenuate the noise level from the surroundings apart from improving the aesthetics quality of the region and serving as an open laboratory for the students of all disciplines.
5.	Does the college use innovative solutions for management of waste & Wastewater?	Yes, college is adopting 3 R's principles for management of waste & waste water. Wastewater is subjected to treatment for the secondary purposes.

#### **Technological Innovations and Green Practices followed in Education submitted by Deshbandhu College-2021-2022:**

- 1) Online courses, teaching aids, educational software (Microsoft teams, Zoom, Google meet, Quizzes etc.) social networking tools (What App, Telegram, Facebook, Twitter etc) replaced the traditional chalk and board method of teaching and learning.
- 2) Online mode of education has reduced the usage of paper to a great extent, which in turn has saved thousands of trees from being felled and reduced the carbon foot print.



- 3) In order to save paper; projects, assignments, field reports etc. are collected in soft copy format which are also easier to collect, maintain and evaluate.
- 4) Projects taken in the form of presentation help in saving paper.
- 5) Use of chalks has reduced by 80-90% by online/ hybrid mode of teaching. And wherever required, dust free chalks are being used to minimize Suspended Particulate matter pollution.
- 6) E-resources (E-magazine, E-books and E-journals) have served as a rich source of information for students during the pandemic times and they continue to be equally popular amongst students even after the pandemic.
- 7) Library has maintained its own online catalogue.
- 8) With an objective to achieve 100% E-filing, administration department of the college has started maintaining E-files, which has reduced reliance on paper.
- 9) OBE examination system followed
- 10) Conference and workshops were conducted in online/ hybrid mode, which aptly served the purpose of organizing such event and at the same saved precious fossil fuel and resulted in lesser pollution and a wider participation.
- 11) State-of-the-art central research facility – I-4 centre has been developed in the college with all the modern instruments and facilities to promote research in college
- 12) All the Science laboratories of the college are well equipped with modern facilities to provide an innovative learning atmosphere to the students.
- 13) Various ICT tools such as smartboards, projectors, smart TVs, laptops, pen drives, hard discs etc. are used in the college for the development of course material, delivering and sharing content with the students, academic research. Furthermore, these tools have been helpful in administrative work of the college.
- 14) In order to save electricity computers and all the electrical appliances are switched off when not in use.
- 15) Offline and online visits to biodiversity parks, wild life sanctuaries, nature reserves, ecologically sensitive areas to make the students aware about the importance of biodiversity and its conservation.
- 16) Eco-club for nature enthusiast, students as well as teachers can join the club and become a volunteer and participate in various activities which are organized the Eco-club.

- 17) Students from the college participated in various competitions organized by World Wide Fund for Nature-India (WWF India) aimed towards developing eco-friendly initiatives at school and college level.
- 18) Taking a significant step towards becoming an environmentally friendly campus, the College has installed solar power panels on the college premise. The College is becoming one of the first Delhi University colleges to make this move to become self-sufficient in electricity production.
- 19) The college has installed rainwater harvesting Plant, an integral environment-friendly approach. This Green Practice has the double benefit of keeping the groundwater level undisturbed and charging the aquifer.
- 20) The newly developed green belt and Biodiversity Park of the College serves the dual purpose of providing a buffer / barrier between the sources of pollution from the surrounding areas. It helps to attenuate the noise level from the surroundings apart from improving the aesthetics quality of the region and serving as an open laboratory for the students of all disciplines.
- 21) Regular Plantation drives were conducted in college.
- 22) The college is an active of “Nadi ko jaano abhiyaan”
- 23) The college is an active participant of “Swatch Bharat Abhiyan”
- 24) Students are sensitized about environment related issues by nukkad-natak, stage shows etc.
- 25) Laboratory waste is managed and disposed in appropriate ways. No hazardous waste is generated by the college. Biodegradable and non-biodegradable waste is sorted. Biodegradable waste is sent for composting and non-biodegradable waste is disposed off as per the safety norms.
- 26) Special programs are organized on Important Days Like World Environment Day, Earth Day, and Ozone Day, World wetlands day etc. to sensitize the students about environment related issues.
- 27) Guests are honoured by presenting a live plant as a token of respect.
- 28) Unnat Bharat Abhiyaan, Adoption of the village (CSR), where student and teacher volunteer work for social and environmental causes.
- 29) Various NSS activities (nature walk, plantation drives, swatch bharat abhiyaan are held to spread environmental awareness.
- 30) National Service Scheme (NSS) and National Cadet Corps (NCC) of the college undertakes projects for environment, rural development, education awareness, healthcare, etc. Various activities like cleanliness drive, tree-plantation, seminars and workshops are organised by ‘Eco

Club'/ Garden Committee/ NCC/ NSS increase the awareness and sensitivity among students and faculty.

Most of the above points are covered in the sector analysis of task X), but fall under Social Welfare and Community outreach. However, College (DBC) must develop some more innovations in education

**What College (DBC, New Delhi) has proposed:**

- ❖ Green area cover map of the college campus
- ❖ Names of the plants (Trees, shrubs etc.) present in the college campus.
- ❖ Make a board mentioning the birds/plants in the college campus.
- ❖ Adopt a tree programme for students in order to develop a sense of love and affection for trees and nature.
- ❖ E-waste collection centre in the college
- ❖ Paper recycling unit in the college premises
- ❖ Department wise waste paper collection facility. And recycling the paper into files and folders used that can be used in the college or can even be sold outside.
- ❖ Put stickers near switch boards mentioning “Switch off lights and fans when not in use”
- ❖ Administration department will shift to 100% e-filing
- ❖ Put posters in the college at all the prime location mentioning “Please do not litter” and “Say no to single use plastics”
- ❖ Separate dustbins for “Biodegradable” and “Non-biodegradable” waste
- ❖ Reuse of “RO” waste water
- ❖ Short-term course on Organic farming
- ❖ Compost prepared in the college is used as biofertilizer in the college

**Additional information on Technological Innovations is attached at Annexure-VIII of Annexure report.**

## IX. ENVIRONMENTAL LEGISLATIVE COMPLIANCE

The following of Environmental Legislative Compliance Green practices are being followed by Deshbandhu College is as below:

1)	Are you aware of any environmental laws pertaining to different aspects of environmental management?	Yes
2)	Does your college have any rules to protect the environment? List possible rules you could include.	Awareness is there by the college, but improvement needed
3)	Environmental Ambient Air Quality Monitoring conducted by the College?	No, but College is regularly keeping track of Continuous Air Quality Monitoring Stations run by DPCC/CPCB in nearby areas of the College.
4)	Does Environmental Water and Wastewater Quality monitoring conduct by the Institute?	Awareness is there by the college, but improvement needed
5)	Does stack monitoring of DG sets conducted by the Institute/or through Accredited laboratory?	No, but Awareness is there by the college, improvement needed
6)	Is any warning notice, letter issued by state government bodies?	No
7)	Is there any Hazardous waste generated by the College? If yes, explain its category and disposal method.	Yes
8)	Does any Bio medical waste/Electronic waste generated by the College? If yes explain its category and disposal method.	Yes, it is being disposed of through the authorized external agency/vendors.

**Deshbandhu College, Kalkaji, New Delhi** is well aware about India's efforts on Protection of environment. Nevertheless, India is the first country, which has made provisions for the protection and improvement of the environment in its Constitution. In the 42<sup>nd</sup> amendment to the Constitution in 1976, provisions to this effect were incorporated in the Constitution of India with effect from 3<sup>rd</sup> Jan, 1977. In the Directive Principles of State Policy in Chapter IV of the Constitution, Article 48-A was inserted which enjoins the State to make endeavors for protection and improvement of the environment and for safeguarding the forest and wildlife of the country. Another landmark provision in respect of environment was also inserted, by the same amendment, as one of the Fundamental Duties of every citizen of India. **This is the provision in Article 51-A (g) of the Constitution. It stipulates that it shall be the duty of every citizen of India 'to protect and improve the natural**

*environment including forests, lakes, rivers and wild life and to have compassion for living creatures.* There were provisions already existing in various enactments to tackle environmental pollution. The Indian Penal Code, The Criminal Procedure Code, The Factories Act, The Indian Forest Act, The Merchant Shipping Act, etc. have provisions for regulation and legal action for some specific environmental issues. However, with our country's emerging environmental scenario with industrialization in the post-independence era, these were found either inadequate or being not effectively applicable to check the degradation of our environment. After the Stockholm Conference on Human Environment in June, 1972, it was considered appropriate to have uniform laws all over the country for broad environmental problems endangering the health and safety of our people as well as of our flora and fauna. The Water (Prevention and Control of Pollution) Act, 1974, is the first enactment by the Parliament in this direction. This is also the first specific and comprehensive legislation institutionalizing simultaneously the regulatory agencies for controlling water pollution. The Pollution Control Boards at the Centre and in the States came into being in terms of this Act. Another related legislation enacted was the Water (Prevention and Control of Pollution) Cess Act, 1977 in order to conserve this vital natural resource and to augment the finance of these regulatory agencies. Thereafter, The Air (Prevention and Control of Pollution) Act was likewise enacted in the year 1981 and the task of implementation of this legislation was also entrusted to the same regulatory agencies created under the Water (Prevention and Control of Pollution) Act, 1974. As the Water (Prevention and Control of Pollution) Act and the Air (Prevention and Control of Pollution) Act were designed to deal with only water and air pollution problems, it was in 1986 that the Parliament enacted a comprehensive or umbrella legislation for the environment in its entirety. This is the Environment (Protection) Act, 1986. The responsibility for implementation of provisions of the Environment (Protection) Act has to a large extent been entrusted to the same regulatory agencies created under the Water (Prevention and Control of Pollution) Act, 1974. Other agencies besides the Central and State governments are also entrusted with the responsibility of implementing specific provisions of this Act and the Rules made there under depending on their operational requirements.

*Over the years, several amendments have also been made in the various existing statutes to meet the requirements of the unfolding environmental issues. The Indian Forests Act, The Forests (Conservation) Act, The Factories Act, The Wild Life Protection Act, The Mines and Mineral (Regulation and Development) Act, The Industrial Development and Regulation Act and the Atomic*

*Energy Act among others, have undergone such amendments. These Acts, being the responsibility of agencies other than Pollution Control Boards for implementation are not of day-to-day concern for the Boards and, therefore, have not been covered in the present volume designed for ready reference by the functionaries of the Boards and others concerned with them. (Annexure-VII of Annexure report). However, college may increase their awareness on all related laws/rules etc. related to Environmental or Green Audit.*

**Additional information on Environmental Legislation is attached at Annexure-IX of Annexure report.**

## X. SOCIAL WELFARE & COMMUNITY OUTREACH

The following Environmental-Green practices are being followed by Deshbandhu College is as below:

1.	Are college students being well aware of environmental concern pertaining to local communities?	Yes
2.	Does your college have any initiative to educate and aware local communities to resolve their concern about local environmental issues?	Yes
3.	Does the college involve in environmental awareness and participate in National and International programmes through community outreach in your campus?	Yes, Swachh Bharat Movement, Nadi Ko Jano Abhiyan, Interactive Session On Psychosocial Support for Covid Pandemic Situation, Plantation drive, Webinar On “Avenues In Public Health Care, Webinar As A Memoir Of The Kargil Vijay Diwas, Mendelian Genetics In Genomics Studies, World Nature Conservation Day, International Webinar On Protein Structure And Function: Penta-functional Arom Complex. <b>Annexure-VII of Annexure report.</b>
4.	Does college have adopted nearby habitats or villages for environmental cleanliness and social awareness programmes? If Yes explain	Yes, Unnat Bharat Abhiyaan, Adoption of the village (CSR), where student and teacher volunteer work for social and environmental causes.
5.	Does college have National Service Scheme (NSS) to provide hands on experience to young student in delivering community services.	Yes, Various NSS activities (nature walk, plantation drives, swachh Bharat abhiyaan are held to spread environmental awareness.
6.	Does College celebrate Biodiversity & Nature Day, Earth Day, and Ozone Day etc. eminent in the Campus? participate in National and Local Environmental Protection Movement?	Yes, college regularly organize workshop and conferences on the day of important event such Swachh Bharat Abhiyan by students at campus etc. <b>Annexure-IX of Annexure report.</b>
7.	Does College have any Recognition/ Certification for environment friendliness?	No, however, College is participating in Eco-club programmes organized by Govt. of NCT, Delhi.
8.	Does College provide vocational training for students?	Yes
9.	Does College conduct a green/ environmental audit of its campus?	No, this is the first environmental audit done by the college.
10.	Has the College been audited / accredited by any other agency such as NABL, NABET, TQPM, NAAC etc.?	Only by NAAC.

**Additional information along with Gist Table on SOCIAL WELFARE & COMMUNITY OUTREACH are attached at Annexure-X of Annexure report.**

## BEST PRACTICES ADOPTED IN DESHBANDHU COLLEGE

### BEST PRACTICES ADOPTED IN DESHBANDHU COLLEGE, INITIATIVES FOR PROTECTION OF LOCAL/REGIONAL ENVIRONMENT



A	<p><b>Renewable Energy</b></p> <ul style="list-style-type: none"> <li>I. Solar water Heater at <b>Deshbandhu College campus.</b></li> <li>II. A clean source of <b>energy is utilized at campus</b> Adoption of Cycling practices for <b>Carbon Footprint.</b></li> <li>III. Annual Sports activity improves the <b>health of students and staff.</b></li> <li>IV. Efforts towards <b>Carbon Neutrality.</b></li> <li>V. The Solar plant on building roofs is commissioned and operational and will supply of total power on campus.</li> </ul>	
B	<p><b>Biodiversity Conservation</b> Flora and fauna conservation</p>	It is in schedule plan of Campus Environment committee
C	<p><b>Tree Plantation Drives</b> Two drives annually as well as every guest is honored by Tree Plantation at Campus.</p>	Yes
d	<p><b>Groundwater Recharge</b> Through Rain Water Harvesting System.</p>	Yes
E	<p><b>Pollution Reduction</b> Promoting battery operated vehicles (Students) and using public transport by students and staff at campus</p>	Reduction in Air Pollution through vehicular emissions and preventing Biomass burning.
F	<p><b>E-Waste Management</b> Old Computers donated to Government School</p>	Authorized recycler
G	<p><b>Solid Waste Management</b> Lifting of garbage from Deshbandhu College campus on alternate days by Municipal Corporation.</p>	Yes
H	<p><b>Water Conservation</b></p>	Yes, the water used for gardening on campus.



## AREA OF IMPROVEMENTS

- The environmental policy for Deshbandhu College should be developed and adopted for environmental sustainability.
- Campus Biodiversity of Deshbandhu College should be maintained and recorded properly.
- Water Metering of bore wells and other sources in different uses are not available. However, water meters should be installed and maintained for inventory of water uses.
- Water conservation practices should be implemented properly including recycling of wastewater systems.
- Deshbandhu college must exercise and come out with outcome Lifestyle Carbon foot print.
- Storage of chemicals like; paints, gum resins, oils, lubricants, acids etc. should be placed at designated area and safety/warning signs should be displayed.
- A Waste Management plan should be prepared for the campus.
- Laboratory waste management policy should be developed and implemented properly.
- Plastic usage can be reduced in college campus.
- The monthly inventory of e-waste is required to be maintained in formats on a regular basis.
- Environmental monitoring and quality assessment should be ensured on a regular basis.
- College activity including transport, fuel uses and electricity should be maintained effectively aiming for overall reduction in carbon footprint.
- The Community Environmental Awareness programme should be regularly organised by the College.
- College (DBC) must develop some more innovations in Green Practices in Education.

## RECOMMENDATIONS

- The Deshbandhu College should develop a Biodiversity Garden representing diverse flora of the area.
- Set up a water recycling unit where the recycled water can be used for gardening in college.
- Interactive boards of flora and fauna diversity to generate enthusiasm for learners.
- Increase capacity of Solar panels to generate more electricity as renewable energy.
- Rainwater pits should be maintained in the campus wherever possible.
- Promotion of Student startups focusing on environment and sustainability.
- Peri-urban community specific outreach program for environmental awareness.
- Training and awareness of environmental legislation should be organized for faculty staff and students.
- Collaborate with a waste management agency for medical, hazardous and e-waste management.
- Replace tube lights and bulbs with energy efficient LEDs.
- More energy efficient air conditioners and coolers should be used in the College campus.
- Finally, Deshbandhu College needs to develop more and more nature-based solutions (NBS) to keep the clean environment of the campus area.

**ANNEXURE REPORT  
OF GREEN AUDIT  
for  
Deshbandhu College,  
University of Delhi**

***1. Waste Minimization and Recycling:***

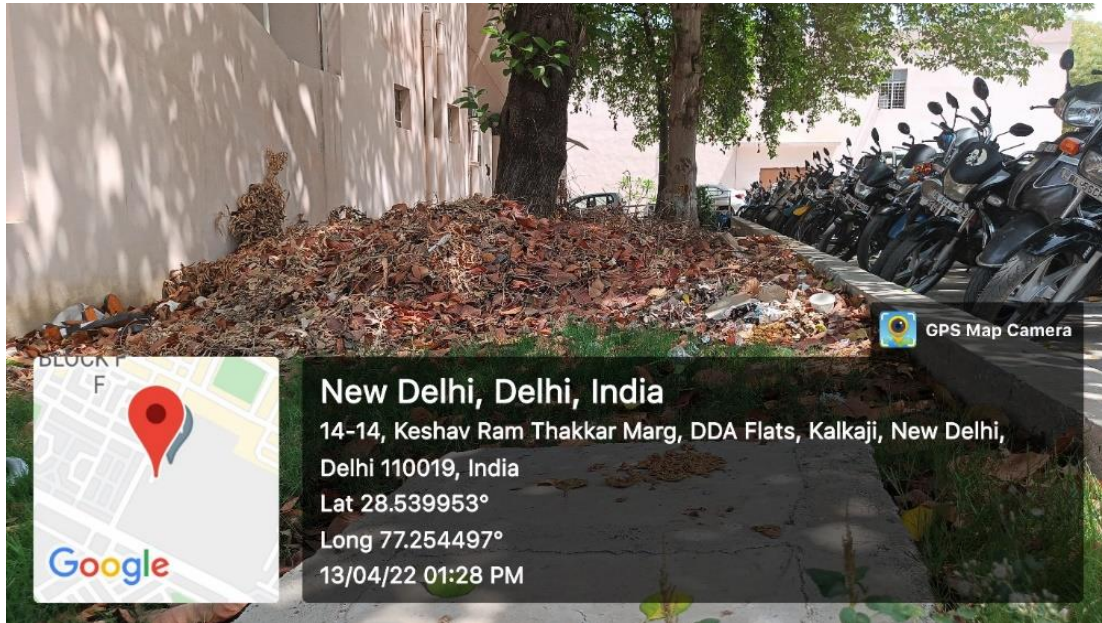


Figure1. Heap of collected litter (temporarily) at front side of the college to be use for composting.



Figure 2. Heap of collected litter to be use for composting at the site of composting unit of the college.



Figure 3. Composting unit for the biodegradable waste treatment



Figure 3. Litter collection and management for composting in Botanical Garden of the college.

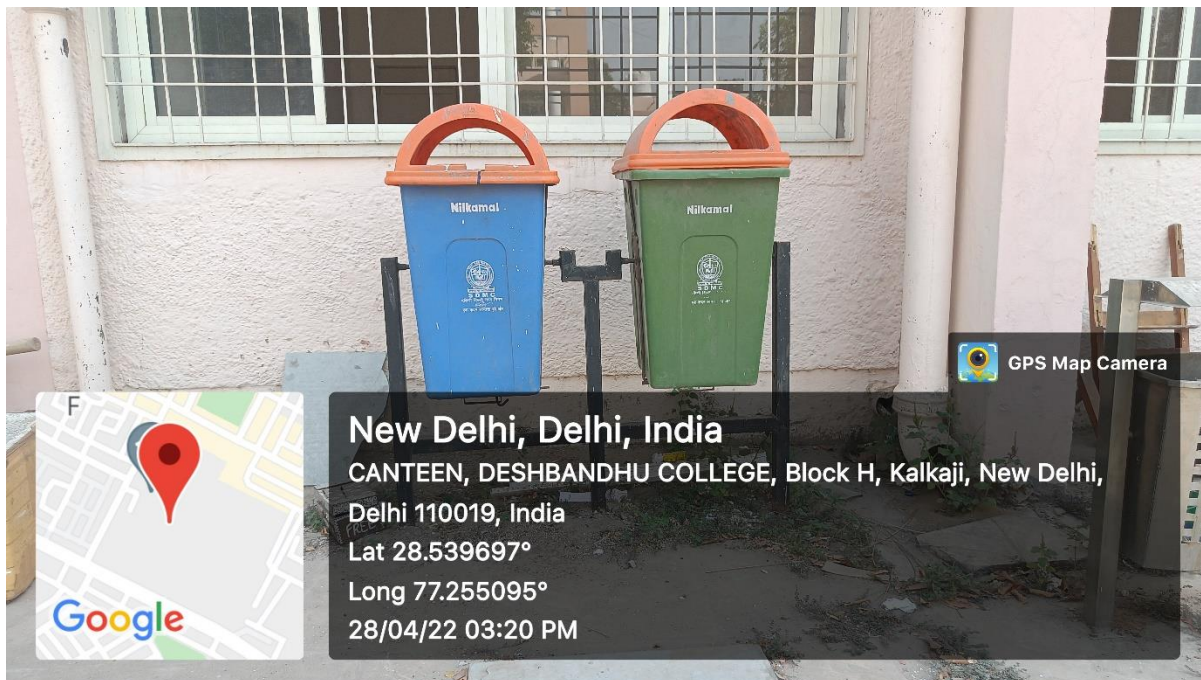


Figure 4. Separate dustbins used for the segregation of biodegradable and non-biodegradable wastes.

***2. Biodiversity and Greening the Campus***

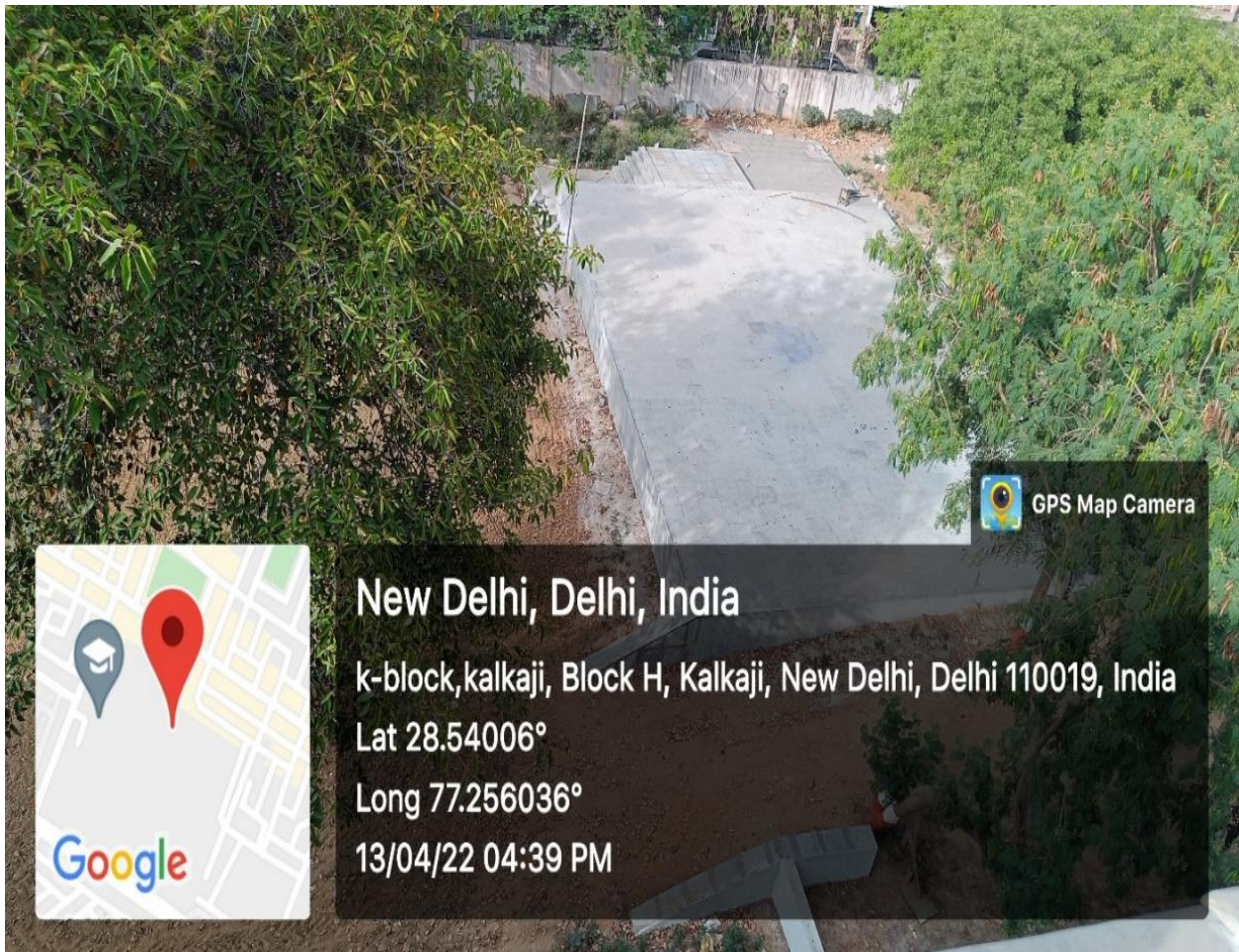


Figure 1. Green area around the main stage and playground



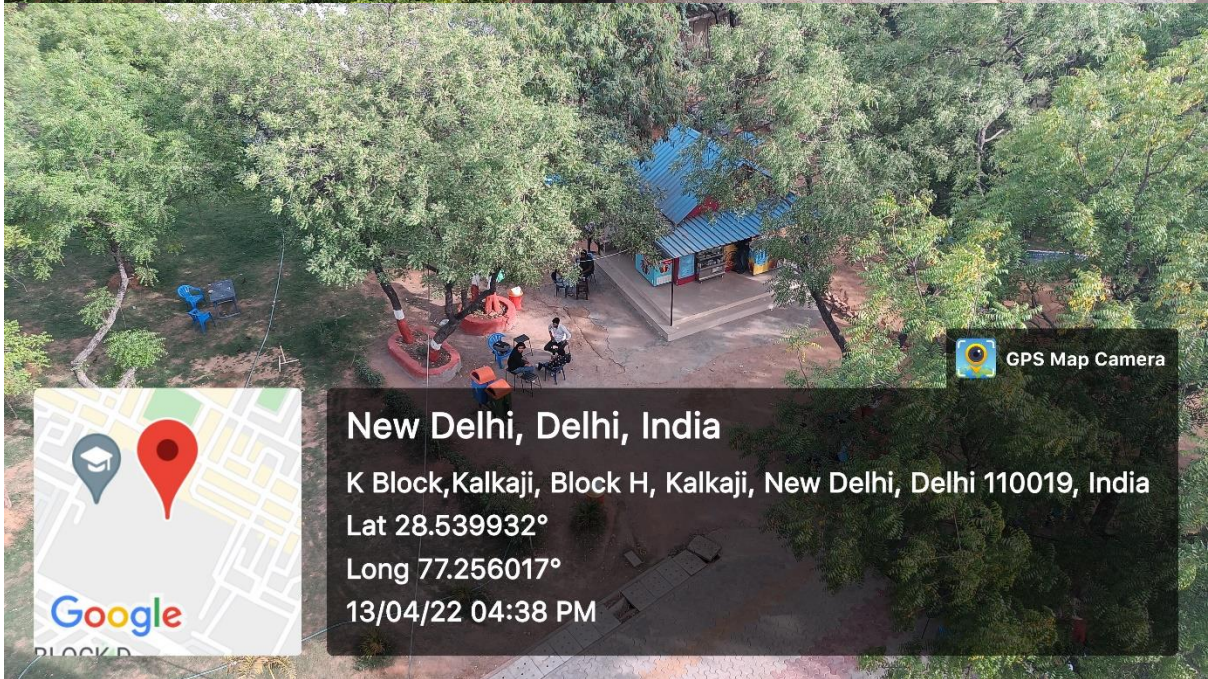
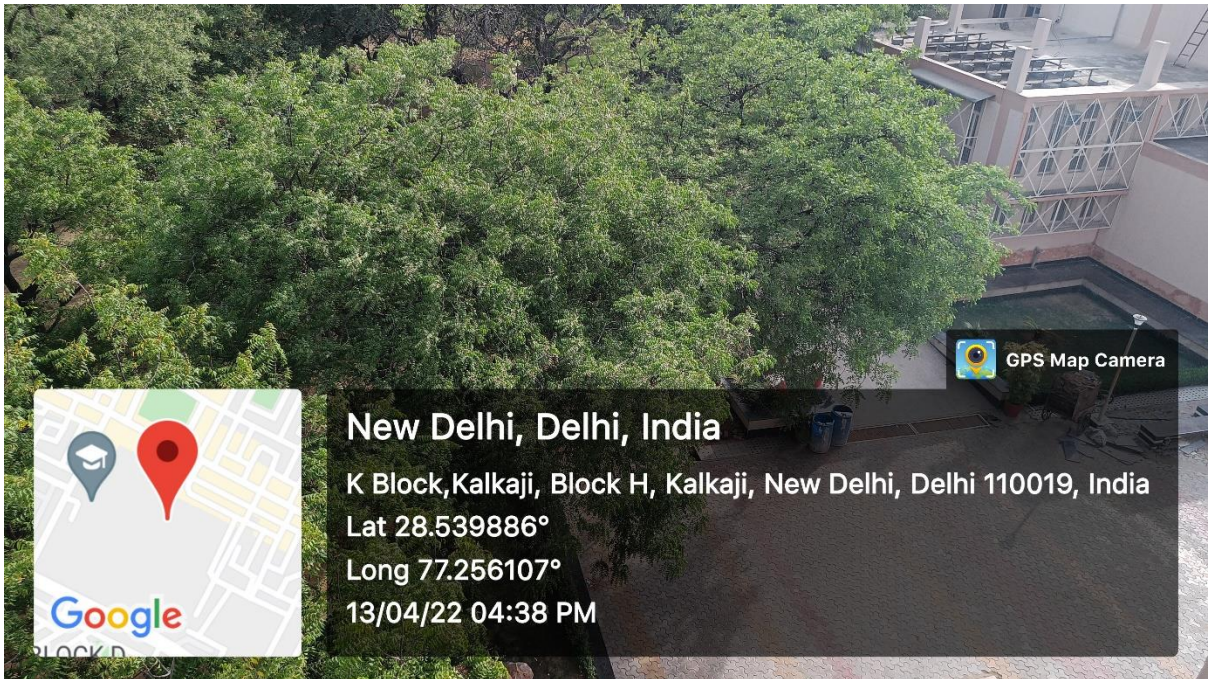


Figure 2 and 3. Thick green cover around the cafeteria.

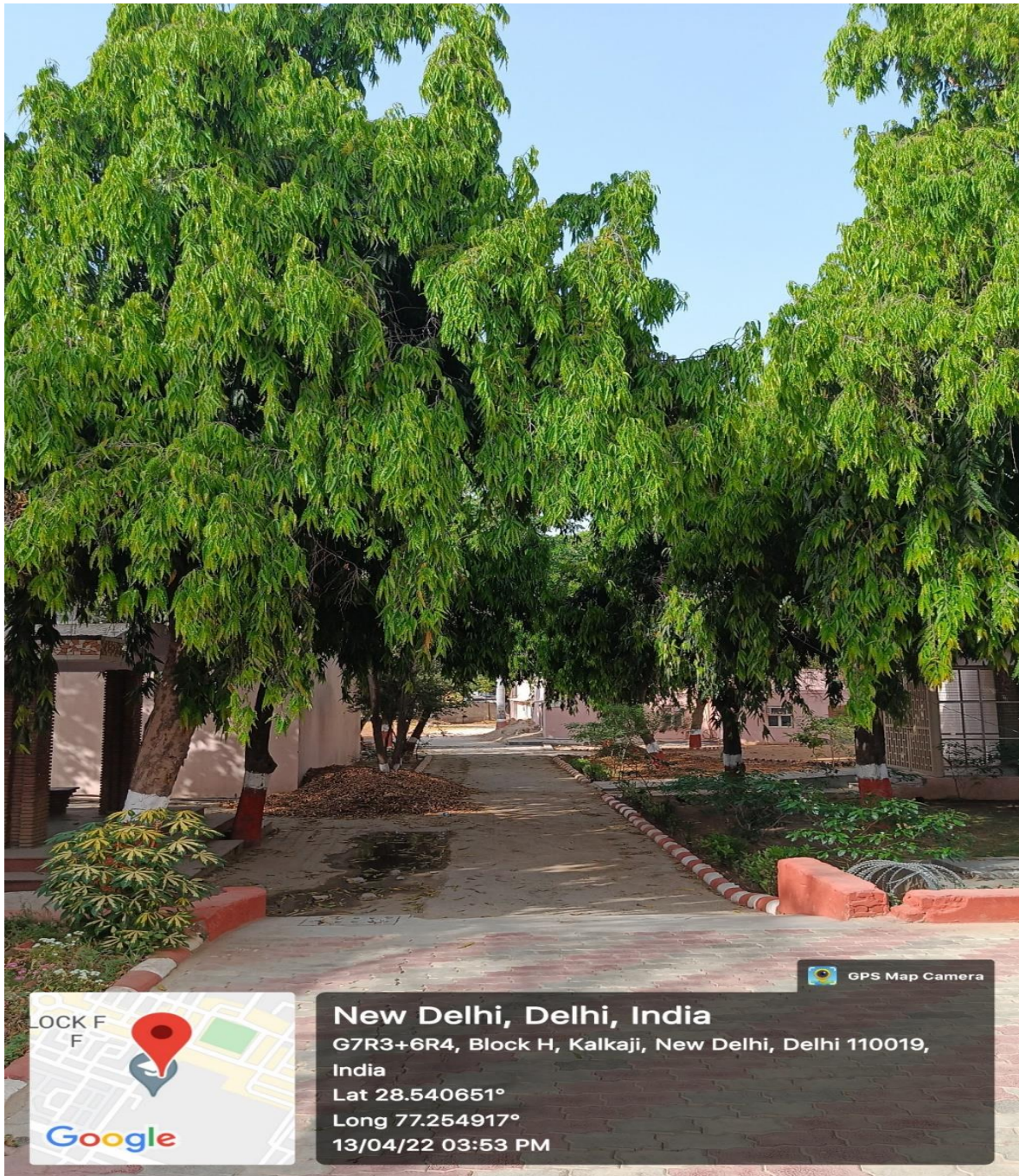


Figure 4. Dense plantation on both sides of the pathway around the campus

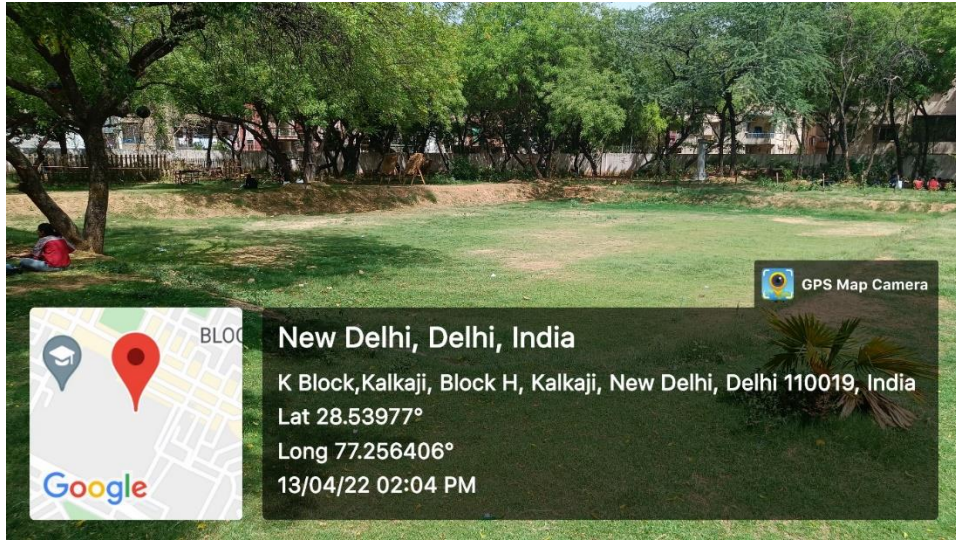


Figure 5. Huge green area used for amphitheatre and rain water harvesing system.



Figure 6. Tree plantation around the boundary wall of the campus to increase greenery further.



Figure 7. Green and shady lawn used by the students in free time.

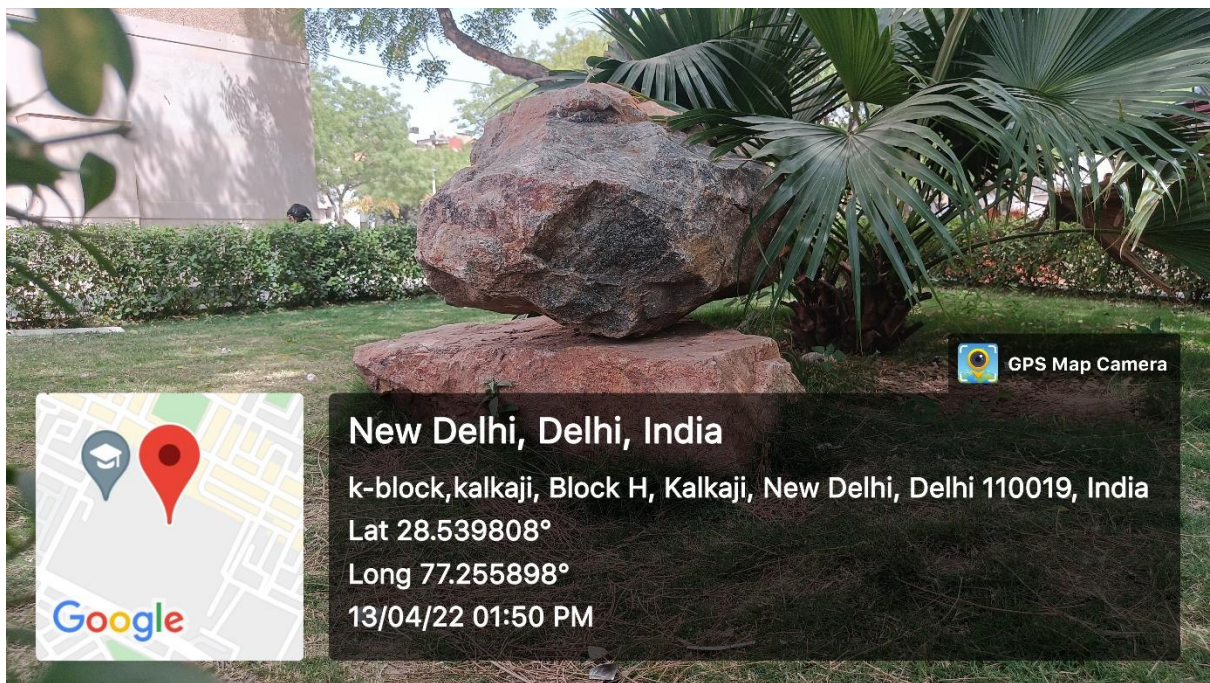


Figure 8. An Aravalli stone implant as an artifact in green area near the cafeteria.

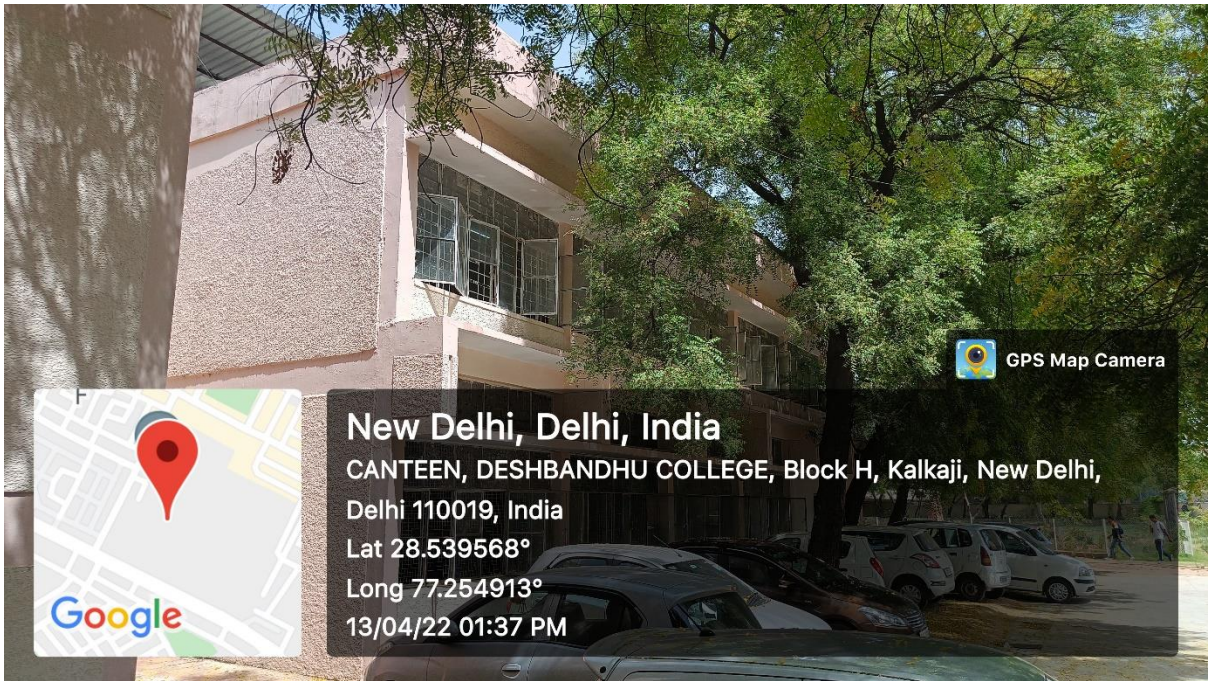


Figure 9. Green cover over and around the classrooms for clean air and shades.



Figure 10. Gated green area of the biodiversity park of the campus.



Figure 11. Aravalli hill stone (>1-billion-years-old) installed in the biodiversity park of college.



Figure 12. Plants species enrichment around historical stone in biodiversity park as part of aesthetics and ecological significance.

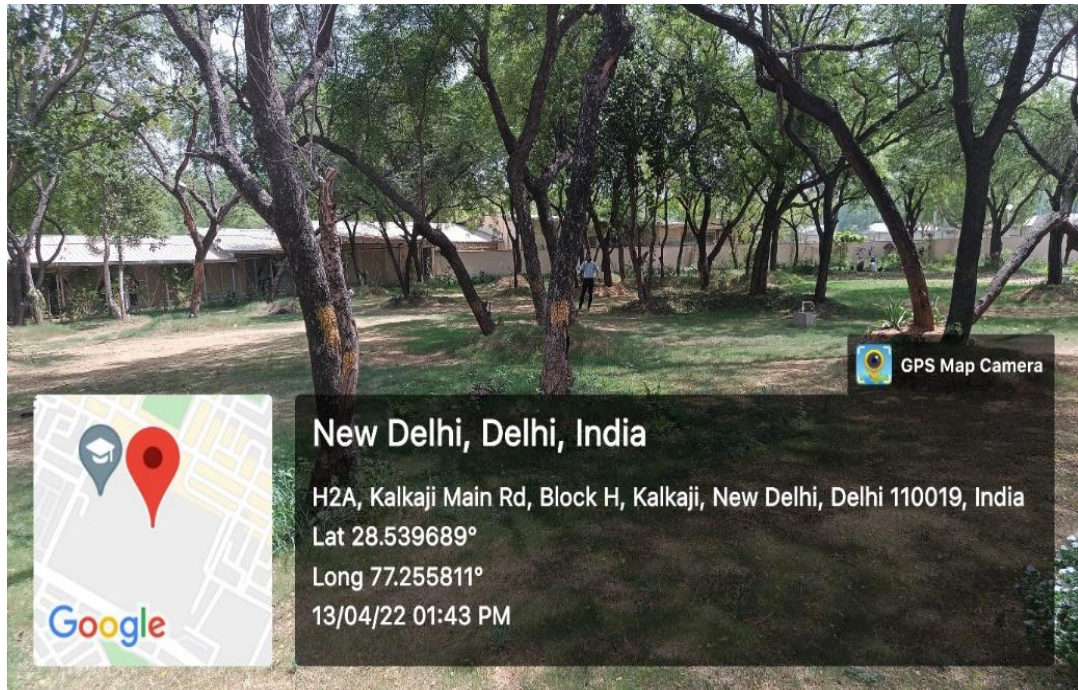


Figure 13. Biodiversity Park with dense plantation in the in the campus.

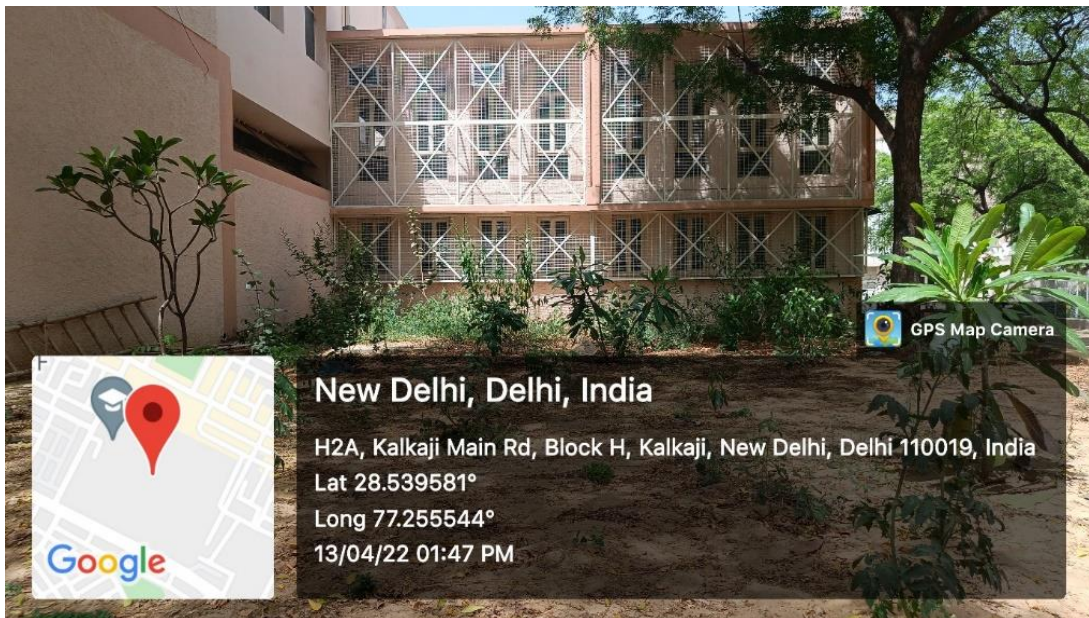


Figure 14. New plants in aromatic garden near library to provide better study environment.





Figure 15. The pathways around the campus with big trees and green cover on both the sides

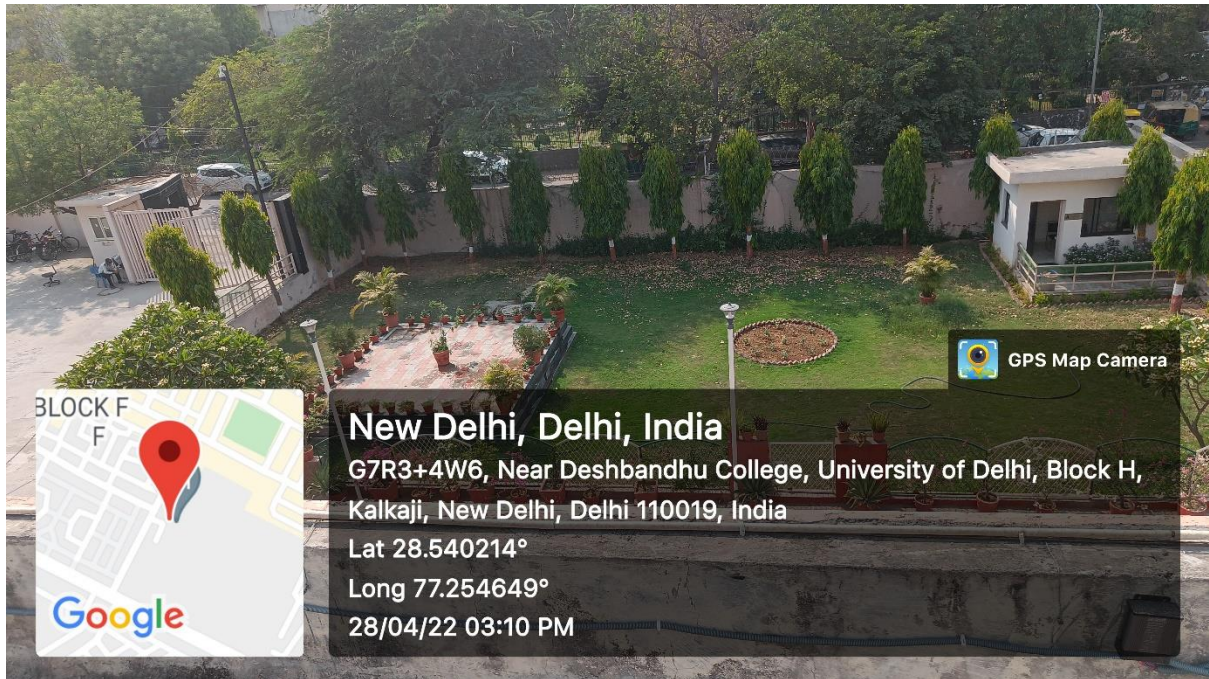


Figure 16. Lawn in the front area of college having rain water harvesting unit and guard rooms surrounded by greenery.

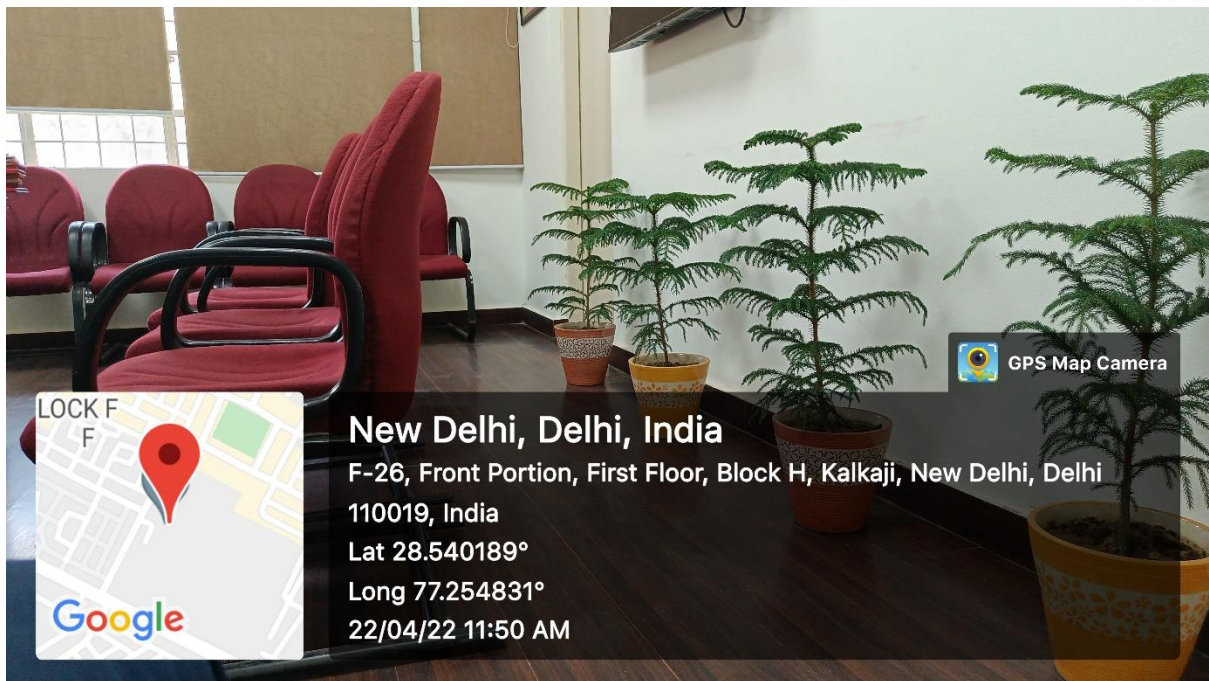


Figure 17. Plants in the administrative block of the college.

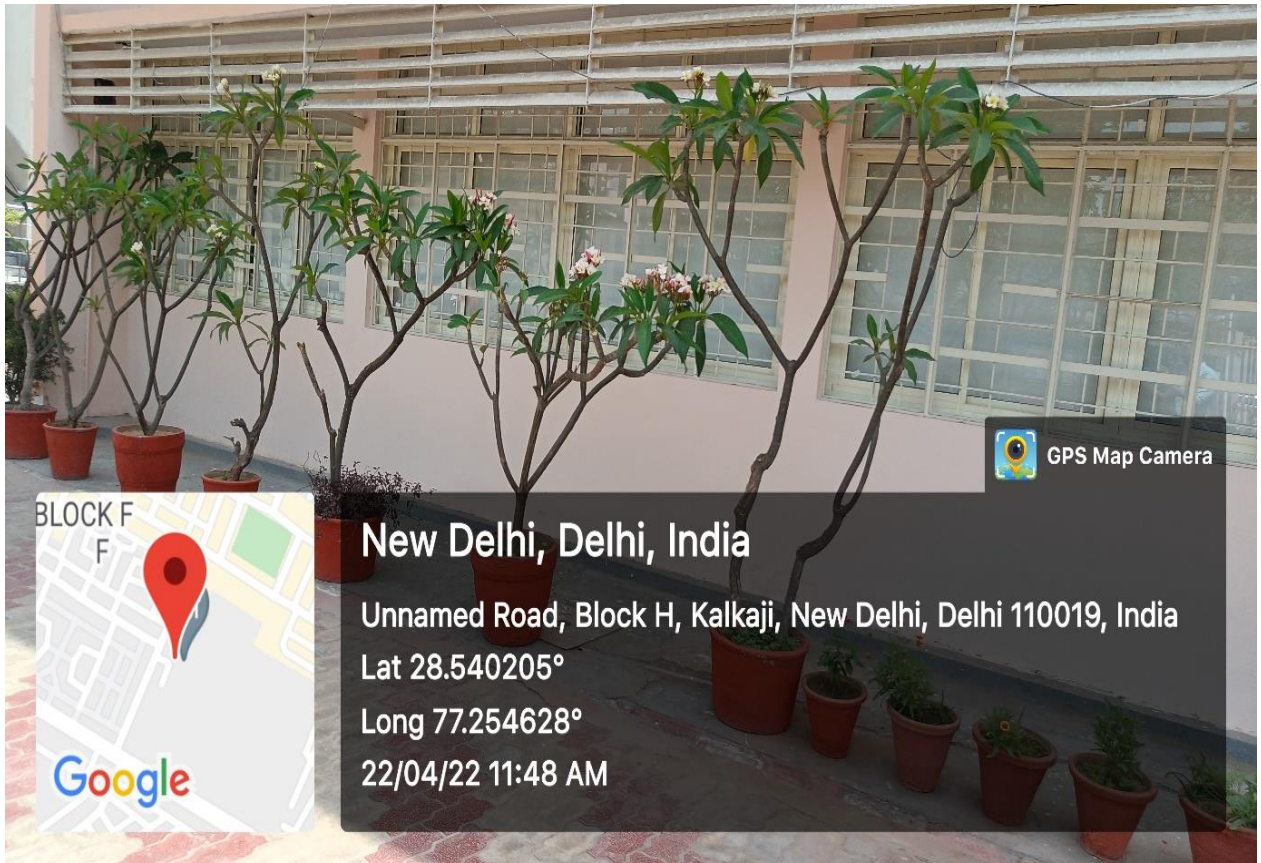


Figure 18. Green plants around the windows near the committee room.

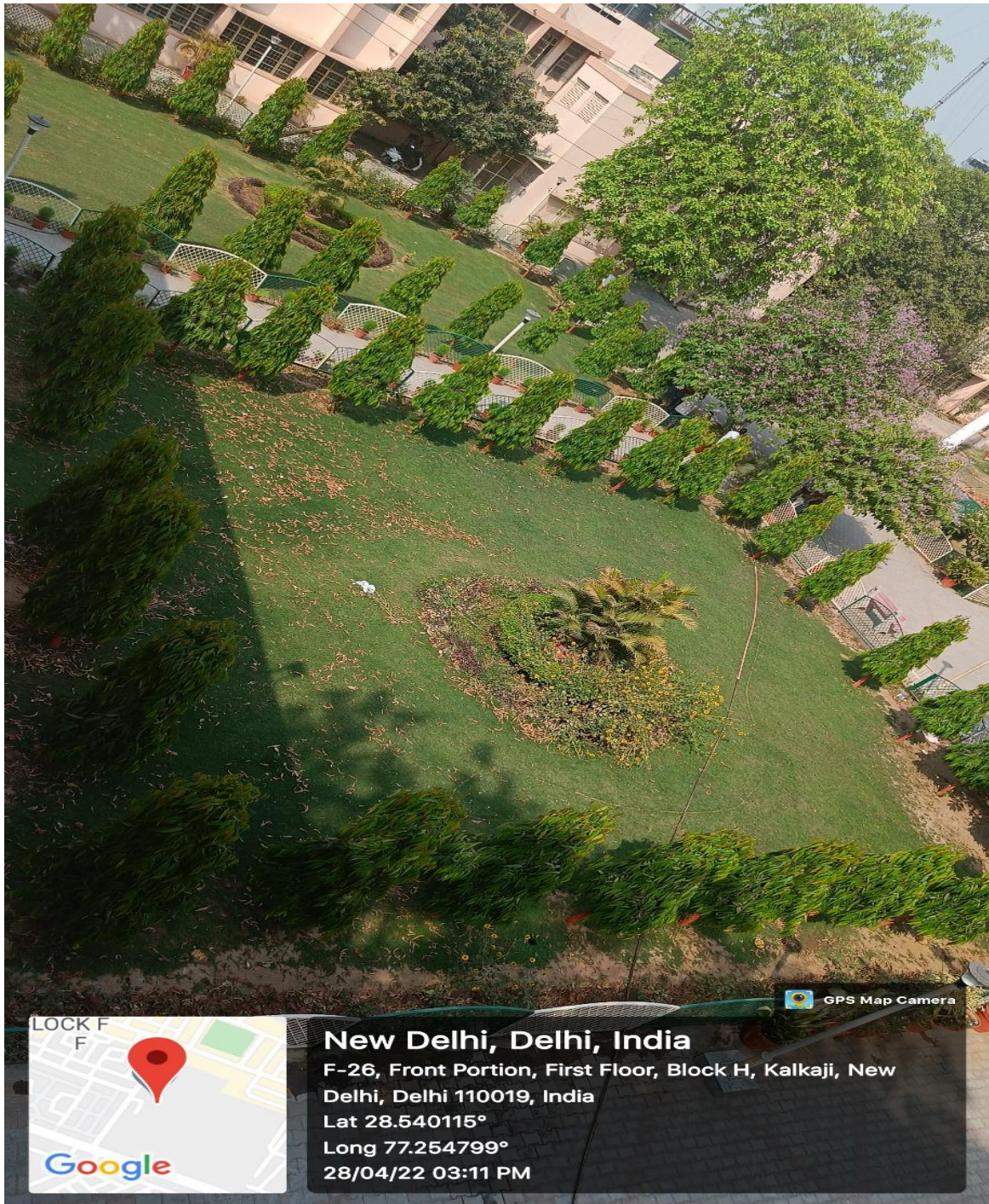


Figure 19. Two lawns in the centre of the college surrounded by administrative block, science block, new block and main staff room.

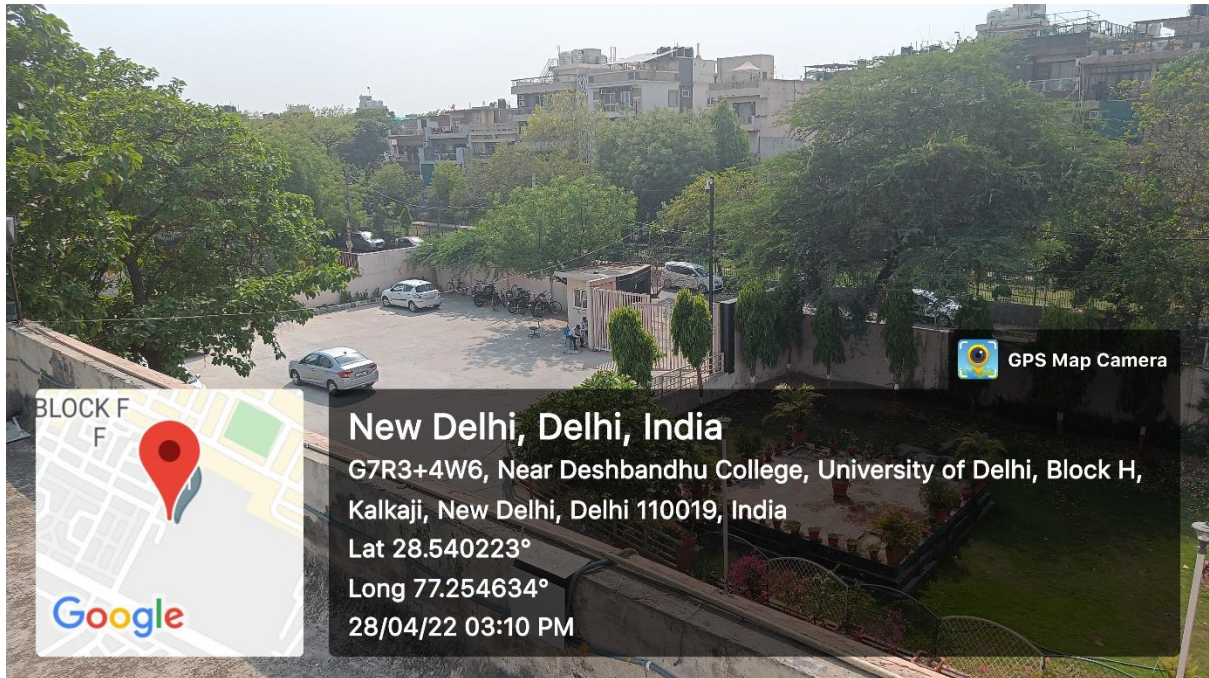


Figure 20. The greenery around parking and the front side of the campus.



Figure 21. The plantation along the walls of the biodiversity park of the campus.



Figure.22 Trees planted around the porta cabins of campus

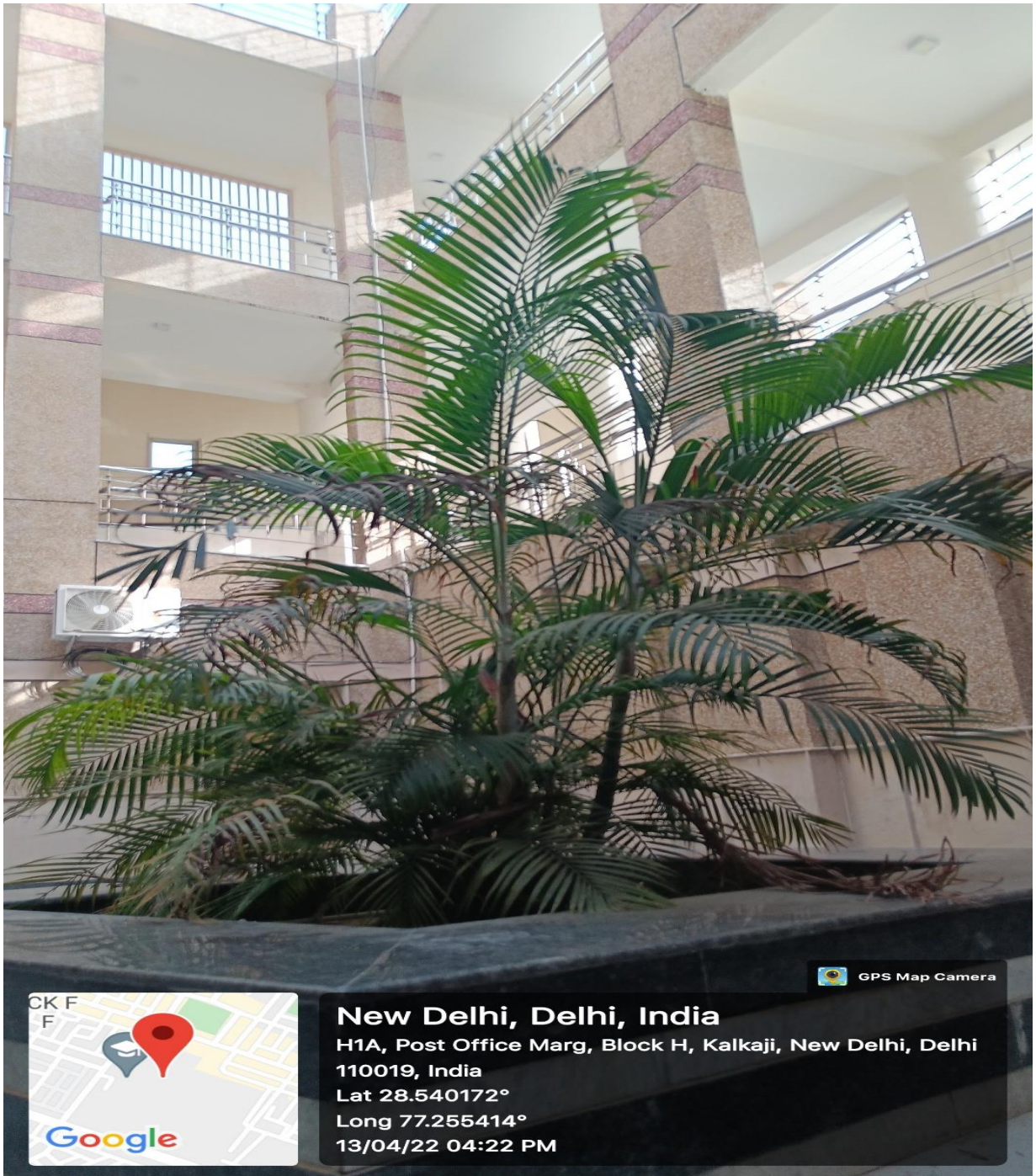


Figure.23 Indoor plantation in the new building of campus

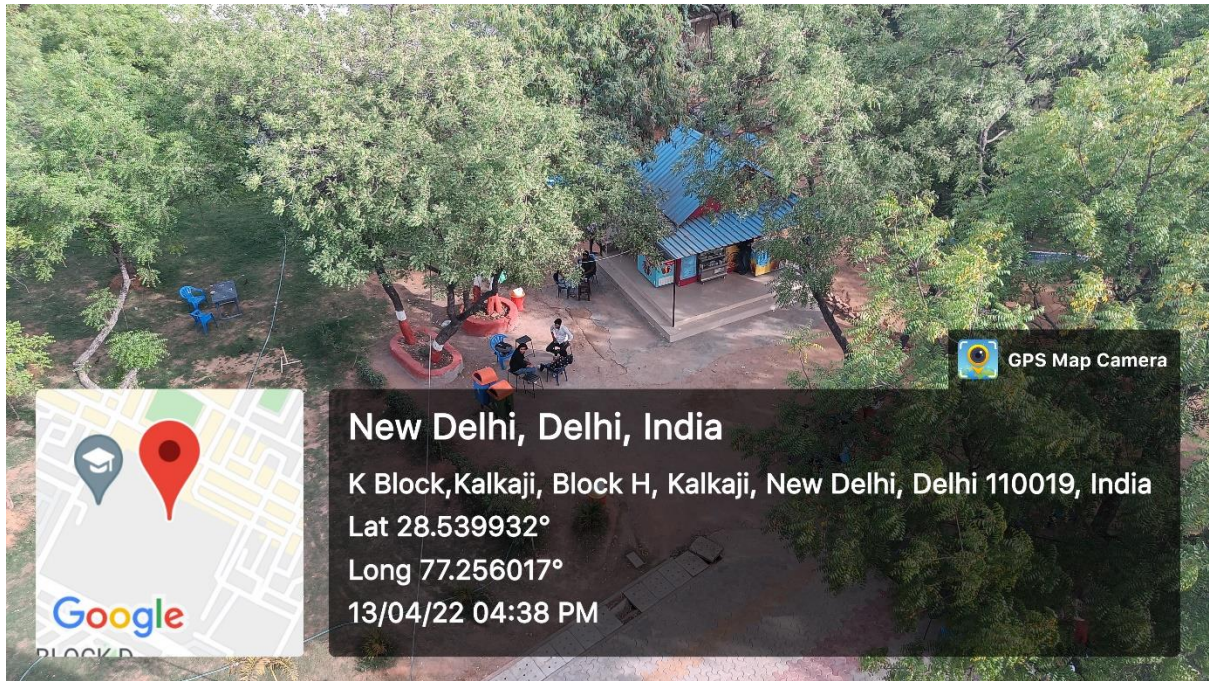


Figure.24 The greenery and dense plantation around the cafeteria of campus

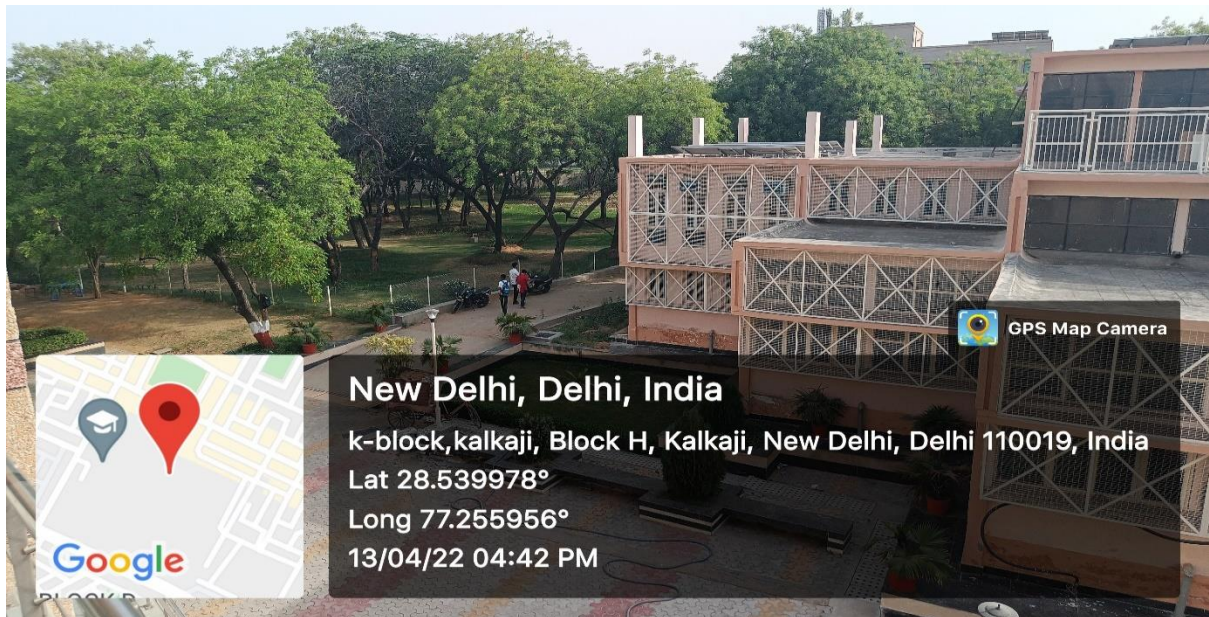


Figure.25 Dense plantation in the biodiversity park of campus



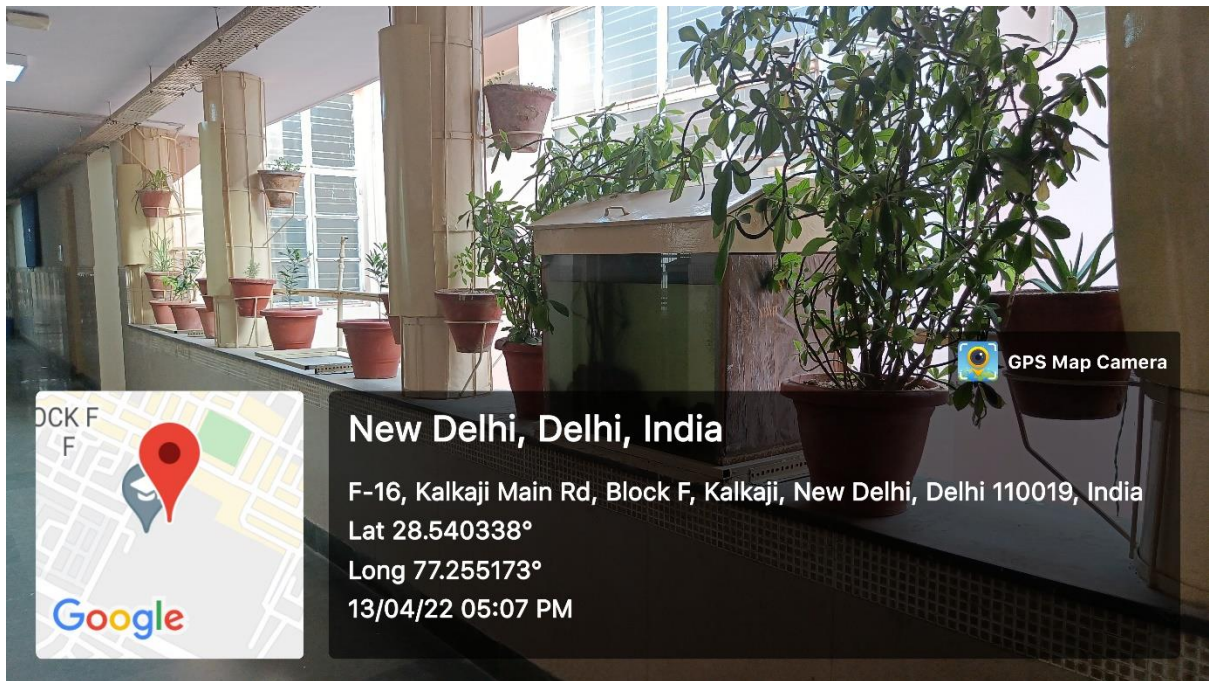


Figure.26 Fish aquarium along with the greenery in the new block corridor

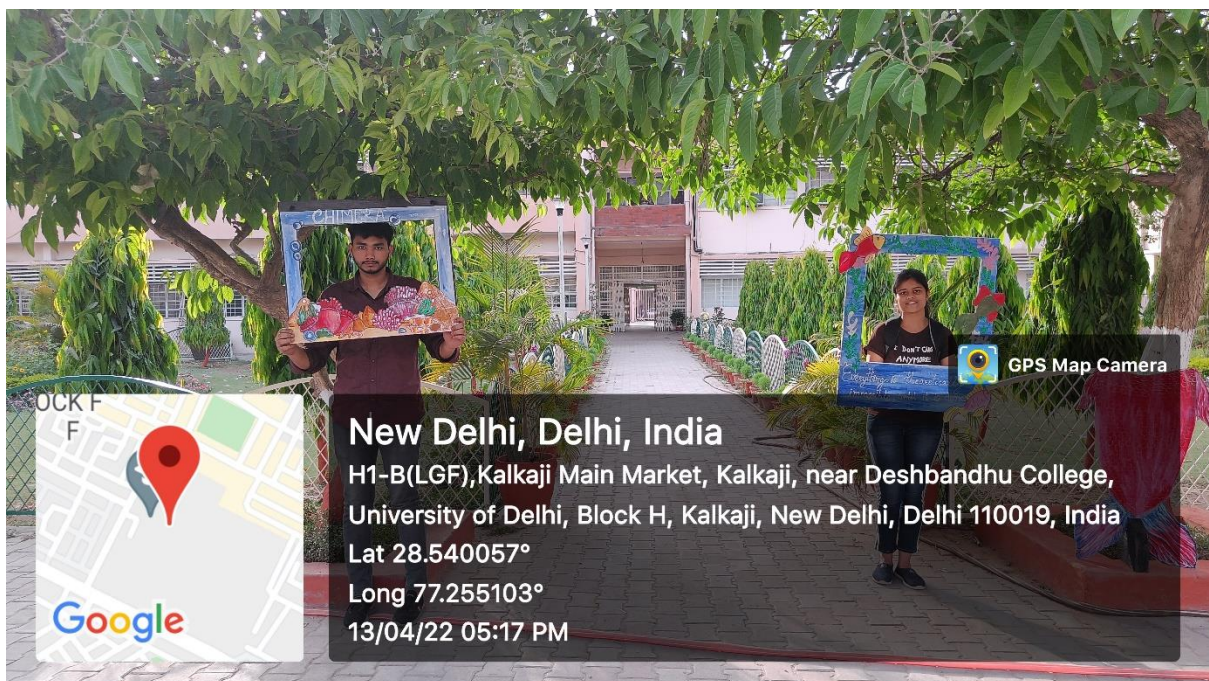


Figure.27 Green corridor between the two lawns in the centre of the campus



Figure.28 Front lawn of the college opposite to the administrative block

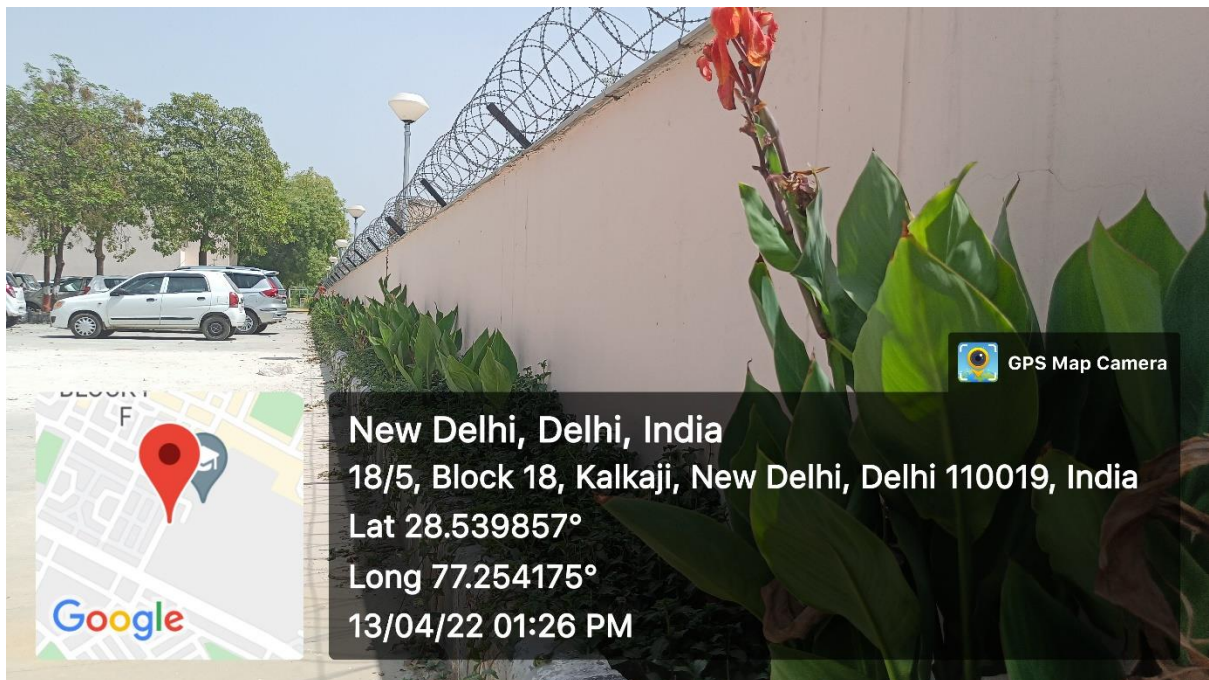


Figure.29 Plantation along the wall of the parking area of the campus

**3. Energy Use & its Conservation**

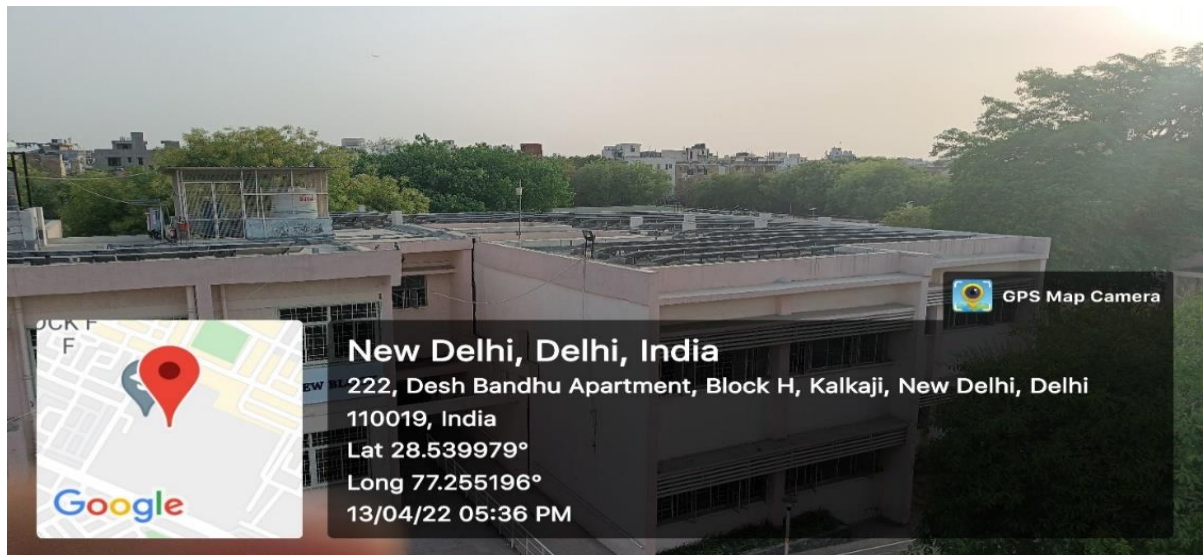


Figure 1. New block building roof with solar panels for green energy



Figure 2. Library building roof with solar panels for green energy.

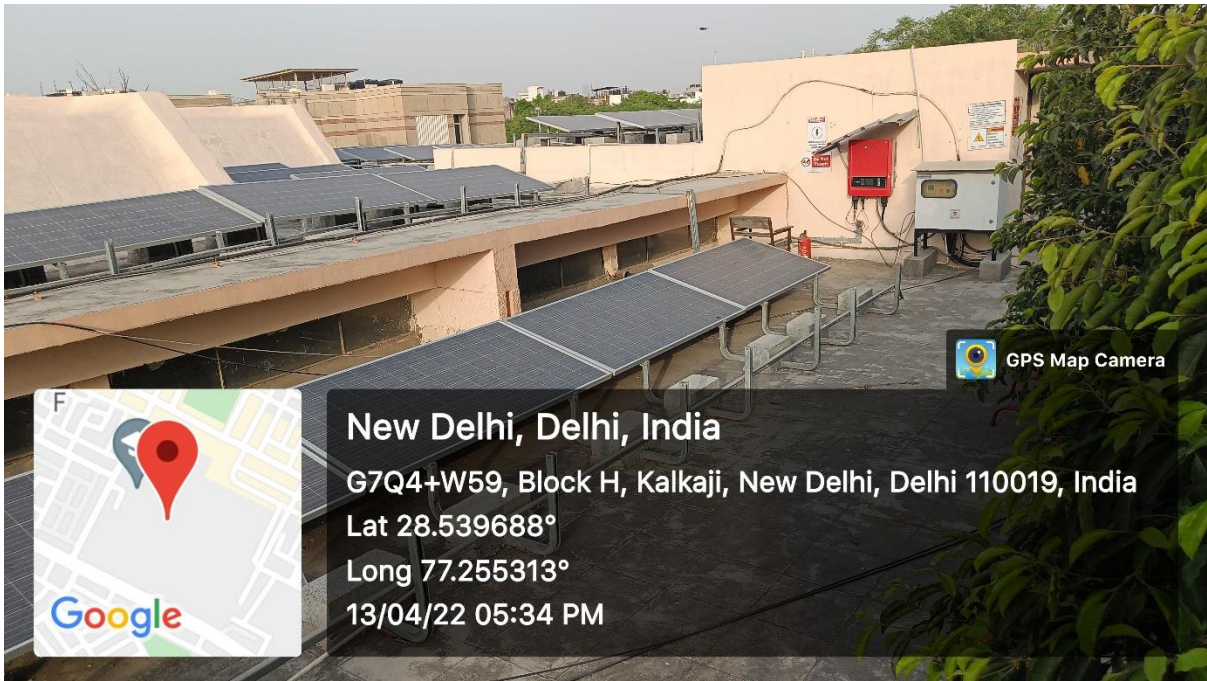


Figure 3. Library building roof with solar panels for green energy.

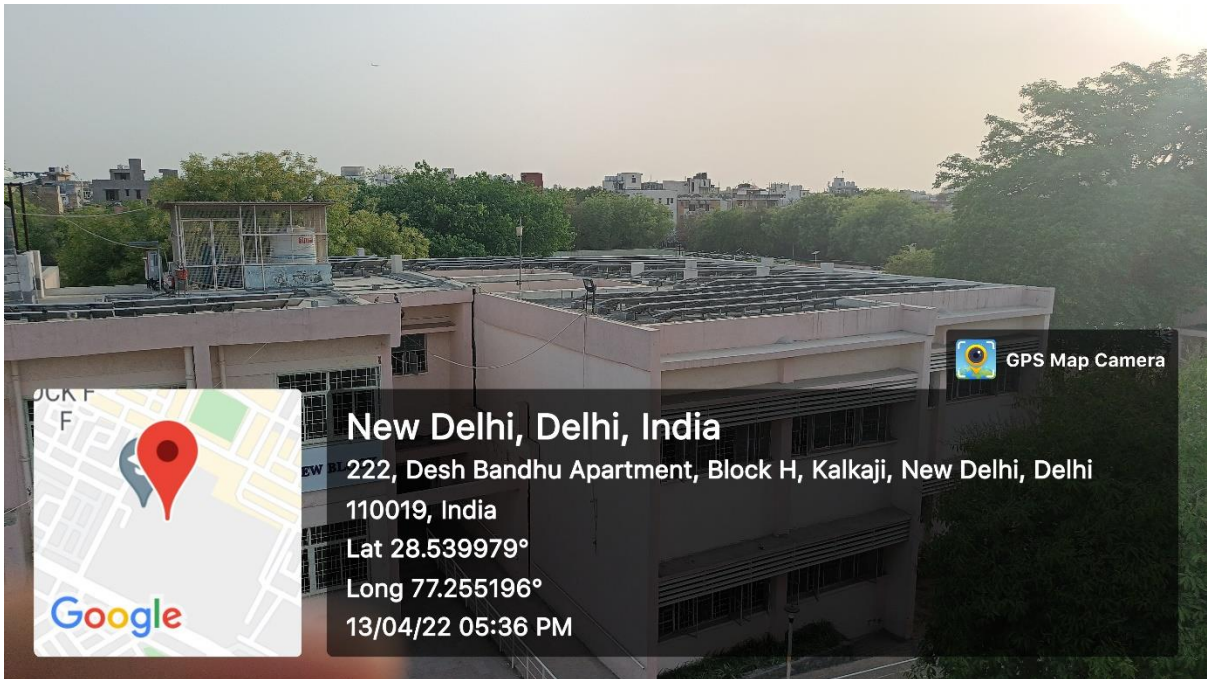


Figure 4. New block building roof with solar panels for green energy.

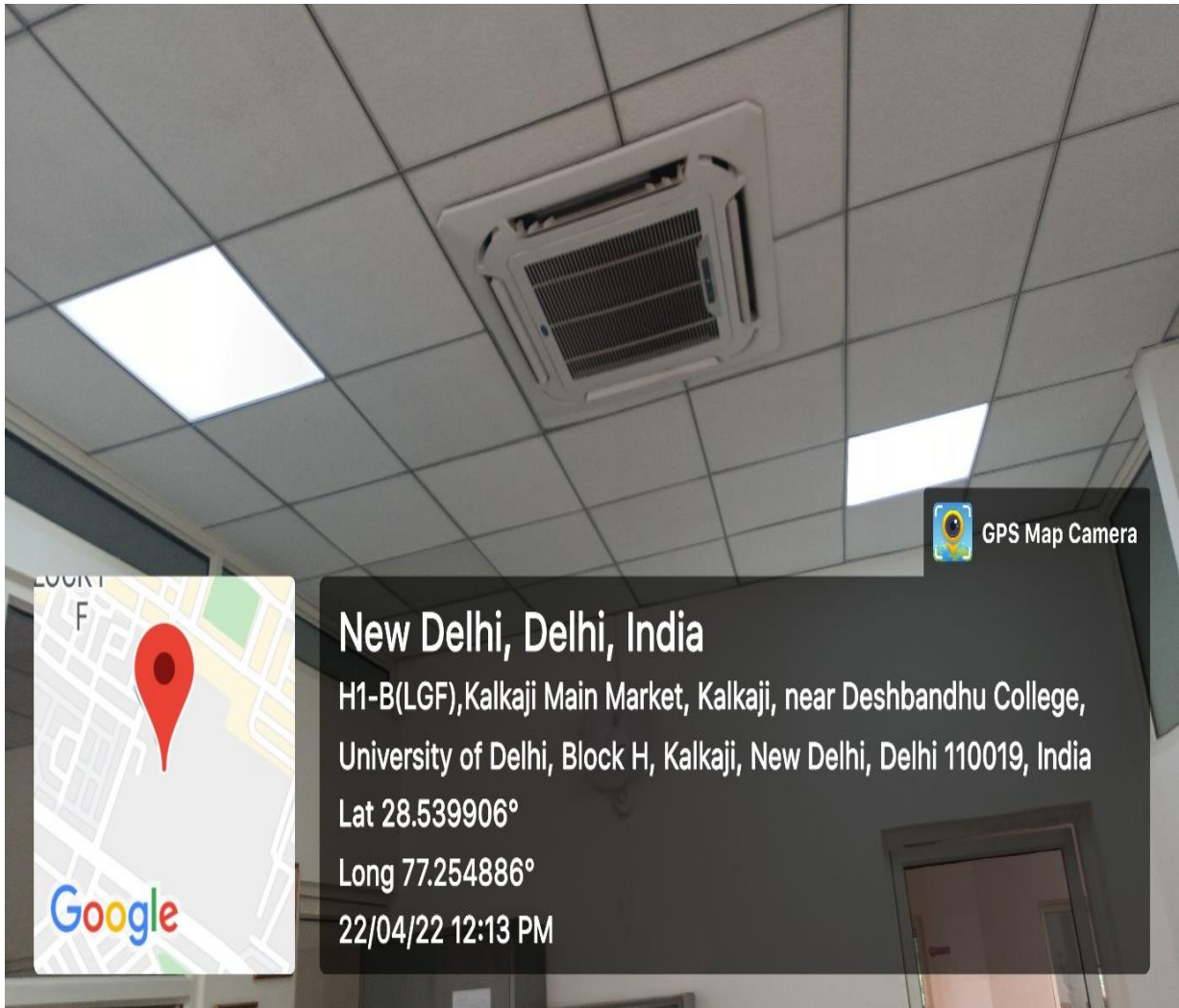


Figure.5 LED lights and central air conditioners for efficient use of electricity in the campus



Figure.6 LED lights and central air conditioners for efficient use of electricity in the campus

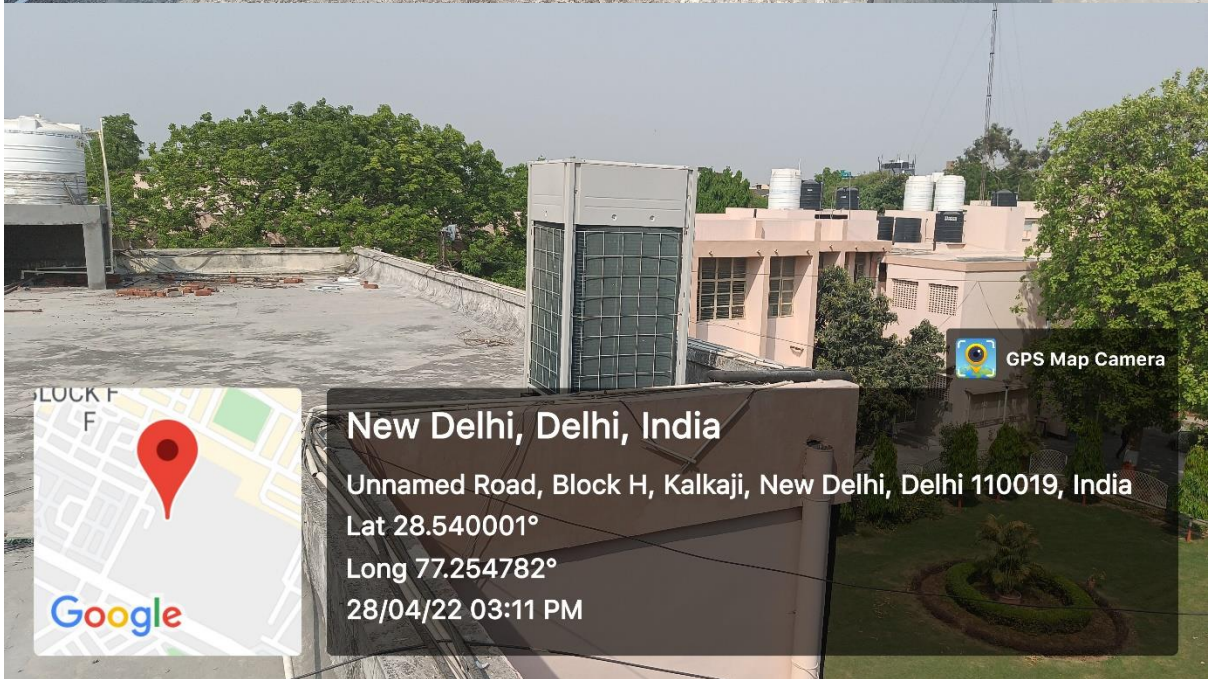


Figure.7 Various VRF (variable refrigerant flow) units of our campus for efficient use of air conditioning systems

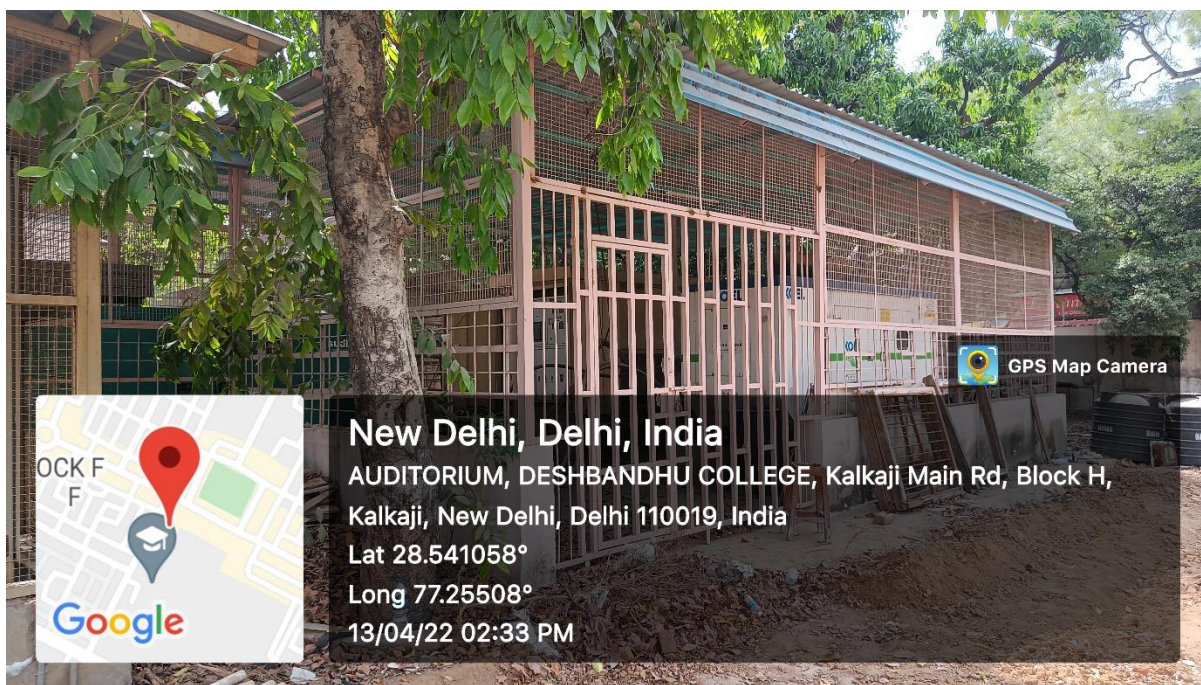


Figure.8 Modern Generator set for efficient use of electricity resources in the campus

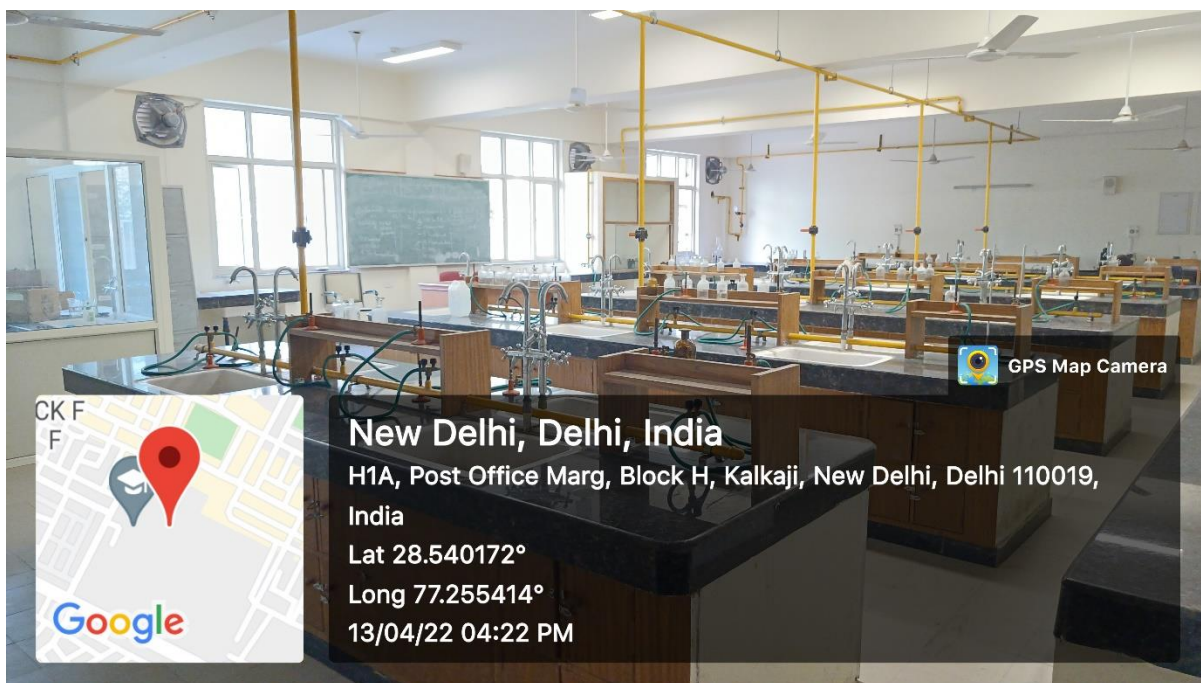


Figure.9 CNG pipelines in the chemistry laboratory and in various research laboratories for efficient use of natural gas resources



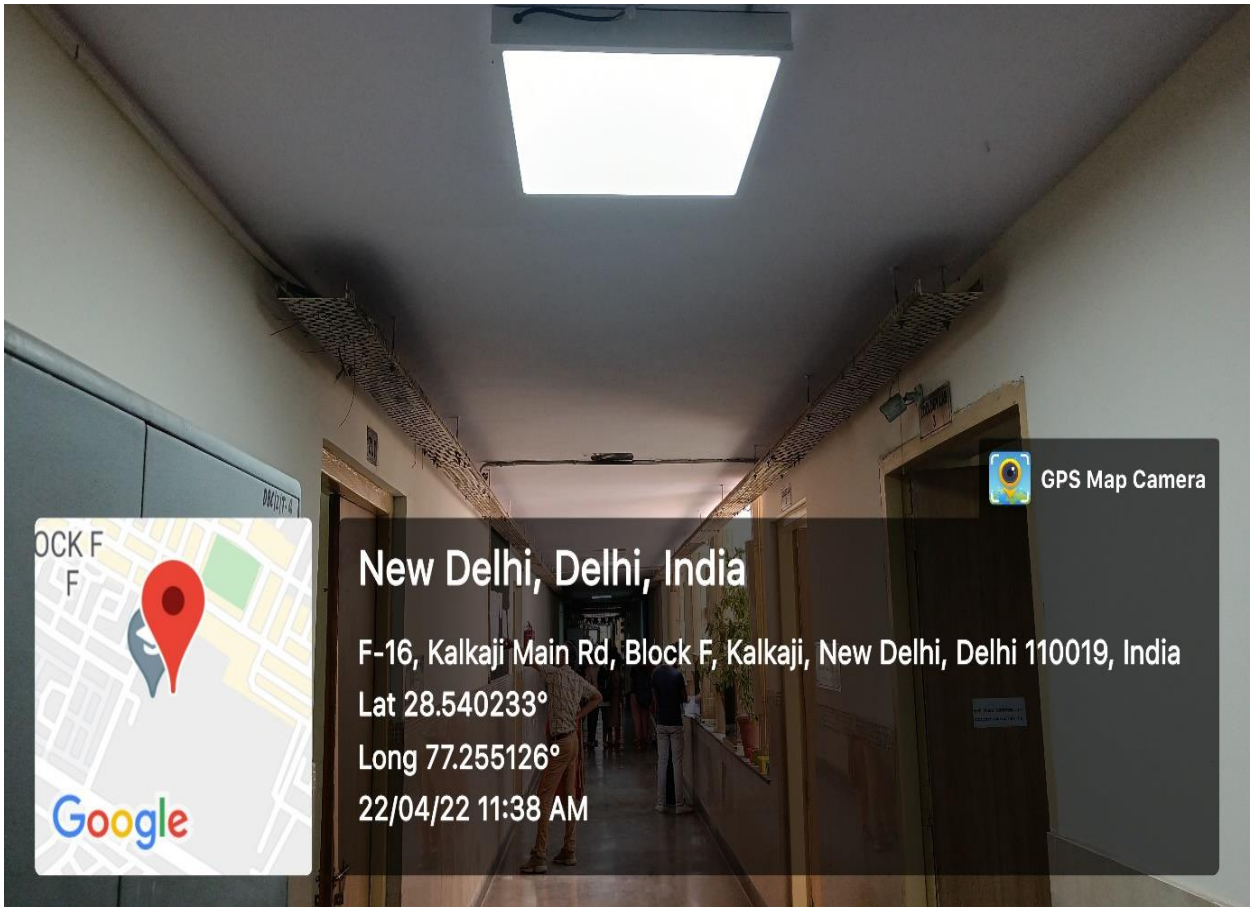


Figure.10 LED lights in the corridors of the campus for efficient use of electricity

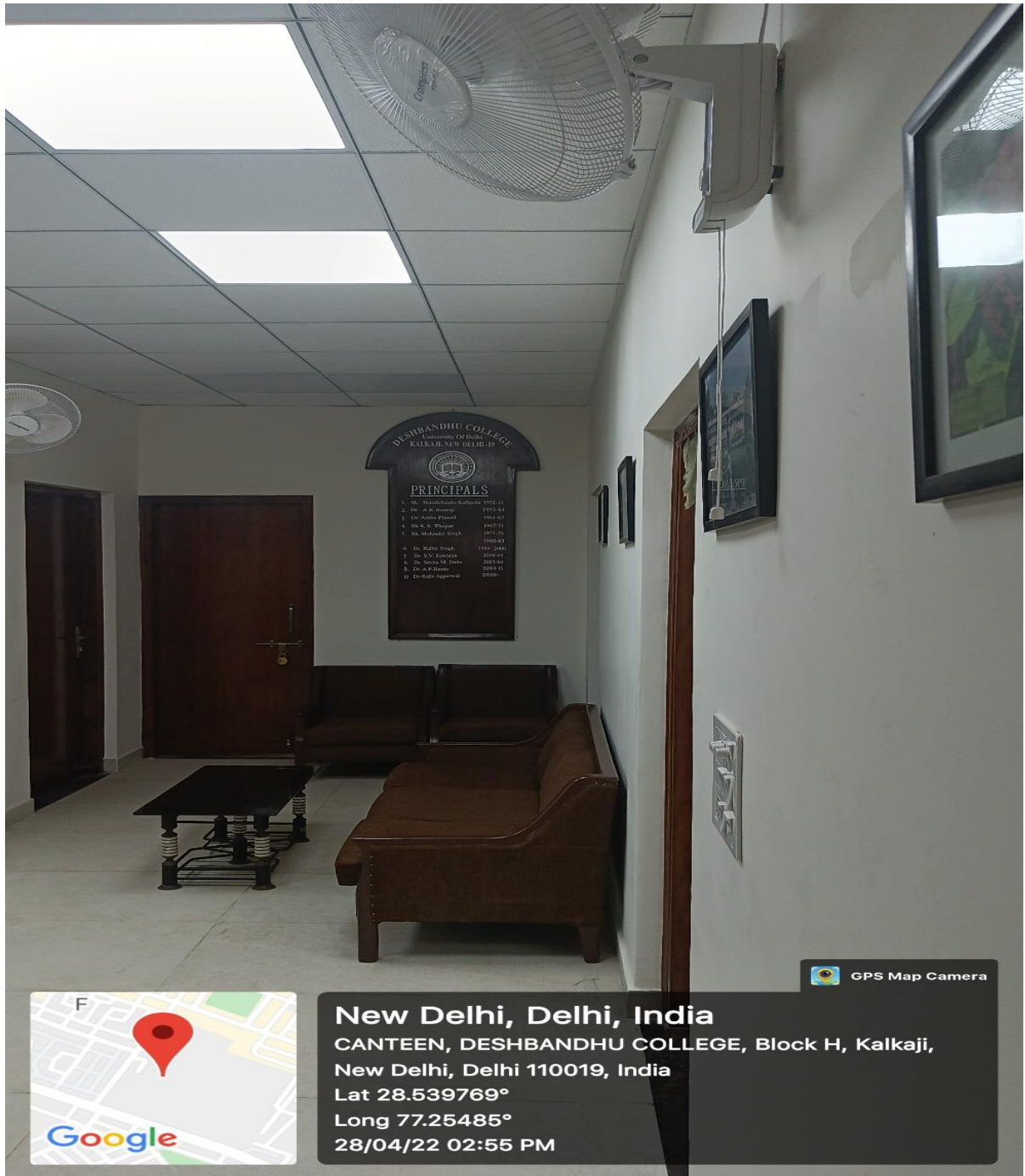


Figure.11 LED lights in the principal office and the entire administrative block for energy conservation

## Summary of the Energy Audit Draft Report

Deshbandhu College, Delhi has completed a pilot project under the Nearly Zero Energy Buildings (nZEB) Program of the Bureau of Energy Efficiency (BEE). BEE has launched this program to demonstrate technical and economic feasibility for converting existing buildings to nZEBs.

The project identifies energy efficiency measures that would enable the project to reduce its Energy Performance Index (EPI) to less than or equal to 15 kWh/sq.m.-year and thus meet the programs definition of nZEB. For this analysis, the steps followed are:

1. Data collection
2. Development and Calibration of energy model with measured energy use
3. Comparison with ECBC 2017
4. Performing Energy Conservation Measures (ECM)
5. Renewable Energy Offset Estimation for nZEB compliance

Based on the data collected; the 'As Built' case has been modelled and compared with the actual energy consumption of the building. The 'ECBC Standard Design' case has been modelled to represent a building complying with ECBC 2017 mandatory and prescriptive requirements. Various energy conservation measures have been analysed to reduce the annual energy use.

It is anticipated to save 90,391 kWh annually with an EPI of 26.5 kWh/m<sup>2</sup>/year with a simple payback of 6.7 years. Approximate investment required for Package 02 would be INR 51.8 lakhs. To achieve the nZEB target EPI of 15 kWh/m<sup>2</sup>-yr; 1,65,815 kWh need to be offset/generated through renewable energy sources annually. This would translate to an installed solar PV capacity of 115 kW. Project has installed 75 kW of Solar PV onsite. An additional 40 kW of Solar PV is recommended. Approximate cost per kWp would be INR 60,000 and area per kWp would be 10m<sup>2</sup>.

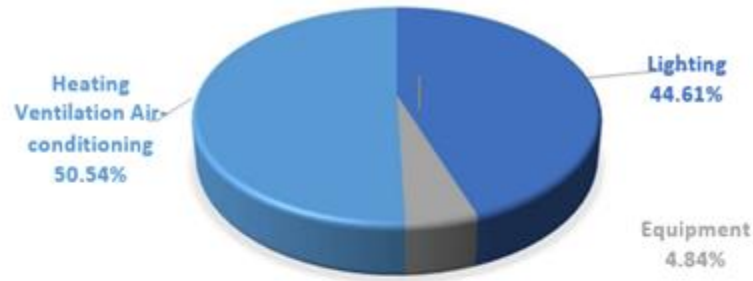
Table 1: Analysis Summary & Recommendations

Alternatives	Annual Energy Use (kWh/yr)	Energy Perf. Index (kWh/m <sup>2</sup> -yr)	(%) Savings	Annual Energy Savings (kWh/yr)	Annual Energy cost Savings (INR-lakhs/Yr)	Incremental Capital Cost (INR - lakhs)	Renewable Energy (kWh/yr)	Simple Payback (Yr)
As Built Case	4,68,688	31.8	-	-	-	-	-	-
ECBC Standard Design	5,72,087	38.8	-	-	-	-	-	-
ECM Package 01*	3,78,297	25.7	19.3%	90,391	8	52	1,65,815	6.7

Table 2: ECM packages along with As-built case

	Component	As-Built	Package 01
ENVELOPE	Wall	230 mm Brick wall with plaster on both sides	As Designed
	Roof	150 mm RCC Slab with water proofing	As Designed
	Glazing	Single Glazing units	Double Glazing Units
		U value - 5W/m <sup>2</sup> K SHGC-0.75	U value - 3W/m <sup>2</sup> K SHGC-0.62
LIGHTING	Lighting Power Density	6.2 W/m <sup>2</sup>	5 W/m <sup>2</sup>
COMFORT SYSTEM & CONTROLS	Air Conditioning	Packaged Terminal AC (Window and Split AC)	Replace 3 Star with 5 Star Air Conditioners
	Ceiling Fans	Ceiling Fans@75W	Replace existing Ceiling Fanswith BLDC Fans @50W

<b>RENEWABLES</b>	Solar PV capacity required (or Equivalent Renewable Energy) Requirement	75kWp	Total Requirement: 115kWp Existing: 75 kWp Additional: 40 kWp
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**Figure** : Energy Consumption by end use

**The As-built case end-use is dominated by equipment loads along with HVAC equipment.**



**Figure** : Calibration Results – Monthly Electricity

### Energy Conservation Measures (ECM) - Analysis

General practice in retrofit projects is to evaluate and select energy conservation measures, ECMs, individually based on cost benefit. Under the nZEB rating program, the ECMs have been evaluated individually. However, considering the stringent energy performing targets of nZEB; it would make sense to group individual ECMs into packages to make them economically viable as a whole even if a particular ECM is not cost efficient on its own.

For this analysis, ECMs are broadly divided into the following three categories:

**Envelope:** Increasing the envelope’s thermal resistance to block unwanted heat loss and gain from the outside reduces the energy required for heating and cooling.

**Lighting:** Lights are a significant part of the total energy use and demand in a building. Good

electrical lighting design, fixture selection and control are one of the most cost-effective ways to save energy.

**Comfort Systems & Controls:** Use of energy efficient equipment and controls.

Table 3: List of Energy Conservation Measures

S. No	Alternative	Description	Column1
1	ECM 01	Replace existing glazing with higher performance glazing	Envelope
2	ECM 02	Reduce lighting power density 10% below the As Built	Lighting
3	ECM 03	Reduce lighting power density 20% below the As Built	
4	ECM 04	Replace 3 Star split units with 5 Star	Comfort Systems & Controls
5	ECM 05	Replace ceiling fan with BLDC ceiling fans @50W	
6	ECM Package 01	ECM 03+ECM 04+ECM 05	ECM Package

## Renewable Energy

### Solar Photovoltaic System (PV)

Energy can be generated from various renewable energy sources such as solar, wind and biomass. Various ECMs have been evaluated to reduce the energy consumption of the project. Under the nZEB rating program, the target EPI is 15 kWh/m<sup>2</sup>/yr which is achievable by implementing the ECMs and then by offsetting the remaining energy demand by solar PV system. The Solar PV source have been analyzed to generate the energy required to achieve the nZEB target EPI for different packages.

Components	Values
System Size (kWp)	115
Array tilt (degrees)	28
Module efficiency	15%
DC to AC ratio	1.2
Inverter efficiency	96%

Annual electricity generation (kWh/yr)

1,65,815



BSES Rajdhani Power Limited

Get upto Rs. 150 cash back for paying your electricity bill till March 31, 2022 @Paytm. Use Code: BSESR150

BILL Customer

Bill of Supply for Electricity

Due Date (देय तिथि): 28-03-2022

Name: M/s. THE PRINCIPAL
Address: DESHBANDHU COLLEGE KALKAJ NEW DELHI 110019

Sanctioned Load: 425.00 (kVA)
Contract Demand: 300.00 (kVA)
M D I: 60.00 (kVA)
Power Factor: 0.960
Pole No.: NA
Meter Reading Status: DL
Cycle No.: KC
Tariff Category: Non-Domestic [ HT ]

CA No.: 100017490
Energisation Date: 13-03-1979
Meter Type: 3PSK
Supply Type: HT (11KV)
Bill No.: 100127144871
Actual: R/21/10270355141
CCTV Tagged: No
Street Light Tagged: No
Wi Fi Tagged: No

Supply Address: DESHBANDHU COLLEGE KALKAJ
Mobile / Tel No.: 9899980783
Email ID: dtcollege.dug@gmail.com
District / Division: Alaknanda
Walking Sequence: GK2KC0118A0AA
Bill Month: MAR-22
Bill Date: 13-03-2022

Customer Care Centre No. (ग्राहक सेवा केंद्र का नंबर) 19123 (24x7 Toll Free)

Table with columns: Meter No., Unit, Billed Consumption (Current), Billed Consumption (Previous), Multiplication Factor, Current Consumption (नया पढ़ा).

Billing Details (बिल का विवरण)
Current Period Charges (वर्तमान अवधि का शुल्क) 03-02-2022 to 13-03-2022

Main billing table with columns: Fixed Charge, Consumption Measured, Slabwise Energy Charge, Slabwise Power Purchase, Time of Day, etc.

Past Dues / Refunds / Subsidy table with columns: Refund Unit, Refund Amount, Arrears, Late Payment Surcharge, etc.

Bill Amount Payable (बिल देय राशि) table showing Total Amount Payable of ₹254710.00 and Due Date of Payment 28-03-2022.

IMPORTANT MESSAGE (महत्वपूर्ण सूचना)
Power Purchase Adjustment Charge (PPAC) @ 16.83% has been levied on energy & fixed charge w.e.f 15.11.2021.

Payment slip
Make your digital payment to BRPL CA No. 100017490
Cheque should not be post dated.
Write your telephone number on backside of the cheque.

BSES logo, Bharat Billpay logo, BSES Rajdhani Power Limited, Barcode, and QR code.

Dear Customer, Get your electricity bill directly in your mail box. Switch to save fees. Please call 19123 or email dtcollege.dug@gmail.com or 19123.

Energy

0129 KCC 129/4997

Solar Radiation

0129 KCC 129/4997



BSES Rajdhani Power Limited

Vaccine + Mask + Washing hands + Social Distancing = Victory over Covid

EBILL Customer

Due Date (देय तिथि): 28-02-2022

Bill of Supply for Electricity

M/L: THE PRINCIPAL
Billing Address: DESHBANDHU COLLEGE KALKAJI 10 NEW DELHI 110019

Sanctioned Load : 425.00 (kVA)
Contract Demand : 300.00 (kVA)
M D I : 60.00 (kVA)
Power Factor : 0.960

CA No. : 160817499
Energisation Date : 13-03-1979
Meter Type : 3P/3K

Supply Address: DESHBANDHU COLLEGE KALKAJI KALKAJI
Mobile / Tel. No. : 9999980783
Email ID : dbcollege.dug@gmail.com

Customer Care Centre No. (ग्रहक सेवा केंद्र का नंबर) 19123 (24x7 Toll Free)

Table with columns: Meter No., Unit, Billed Consumption (Current), Billed Consumption (Previous), Multiplication, Current Consumption (देय मात्र)

Billing Details (बिल का विवरण)

Table with columns: Current Period Charges (वर्तमान अवधि का शुल्क), Fixed Charges, Consumption, Subsidy Energy Charge, etc.

Table with columns: Past Dues / Refunds / Subsidy, Provisional Bill Refunds, Arrears, Late Payment Surcharge, etc.

Bill Amount Payable (बिल देय राशि)

₹ 236870.00
Due Date of Payment (प्रदातन देय तिथि) 28-02-2022

Last payment ₹ 308169.66 received on 27-01-2022. Payment accounted upto 29-02-2022.

IMPORTANT MESSAGE (गहत्वपूर्ण सूचना)
Power Purchase Adjustment Charge (PPAC) @ 16.65% has been levied on energy & fixed charge w.e.f 15-11-2021.

BSES Powered by BHARAT BILLPAY BSES Rajdhani Power Limited
Payment a/c/p
Make your digital payment to BRPL CA No. 100017499

Barcode and QR code area with Bill amount payable: ₹ 236870.00

Vertical text on the left edge: Please do not write directly on the bill. For any query, please contact the Customer Care Centre at 19123.

Vertical text on the right edge: EN! miss a pay environment



**4. Water Use & its Conservation**



Figure.1 Rainwater harvesting tank no. 1 in front of the administrative building



Figure.2 Rainwater harvesting drainage system



Figure 3. Water storage tank.

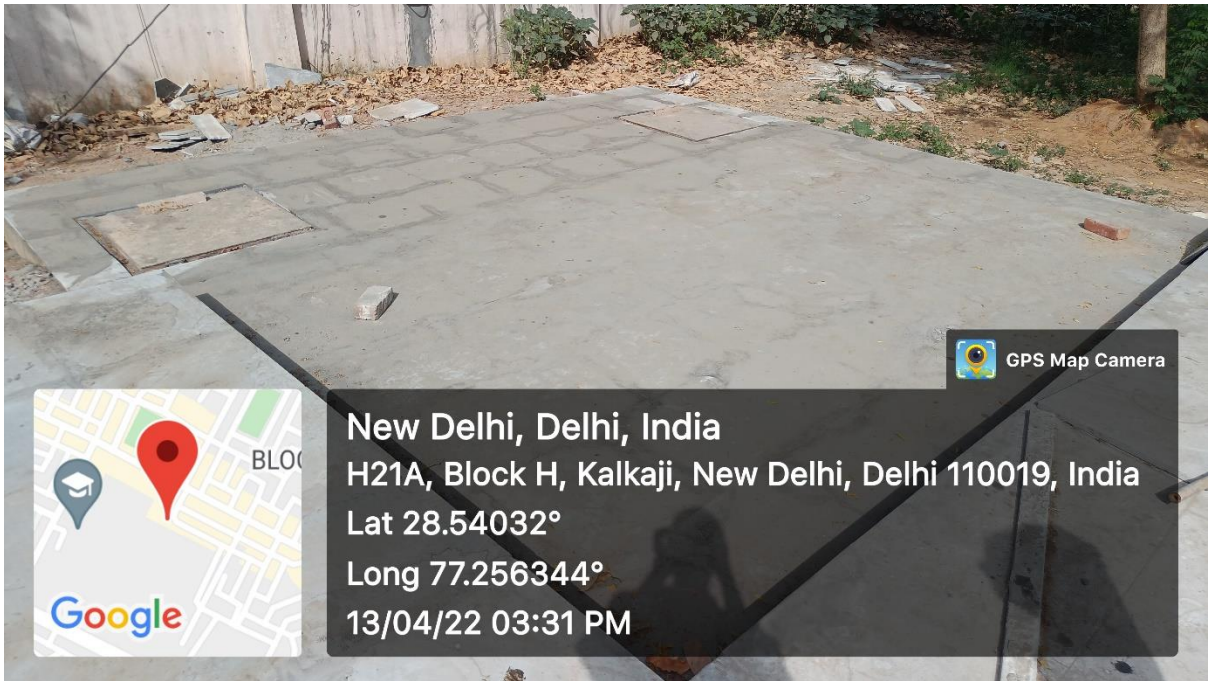


Figure 4. Second water harvesting unit near stage of the college

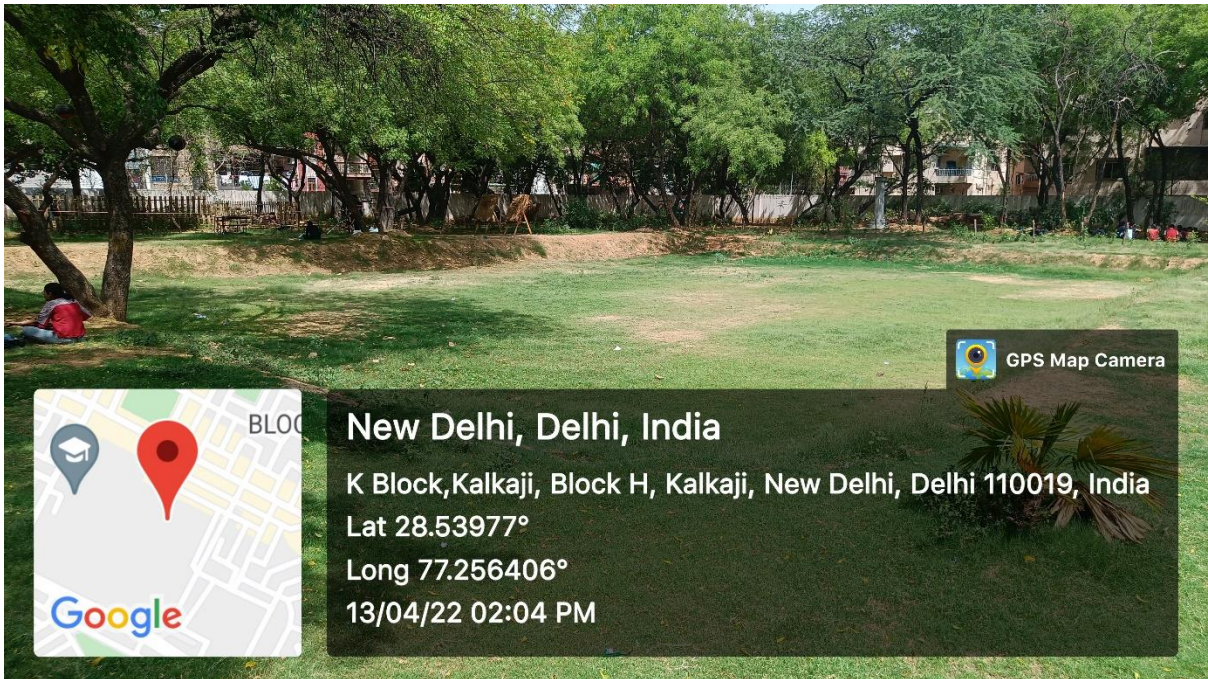


Figure.5 Amphitheatre for rainwater harvesting and efficient conservation

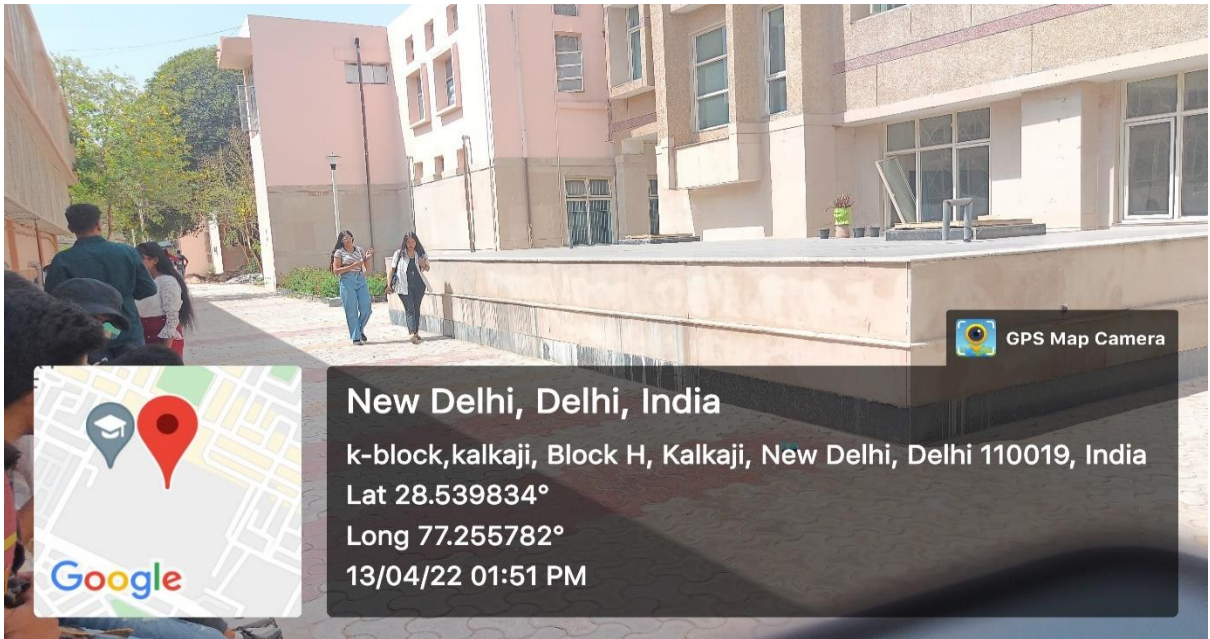


Figure.6 Water storage tank in front of the new block of the campus



Figure.7 Water tank on the roof of the administrative block along with the latest cleaning date



Figure.8 Water storage tanks on the new block of the campus with the latest cleaning date

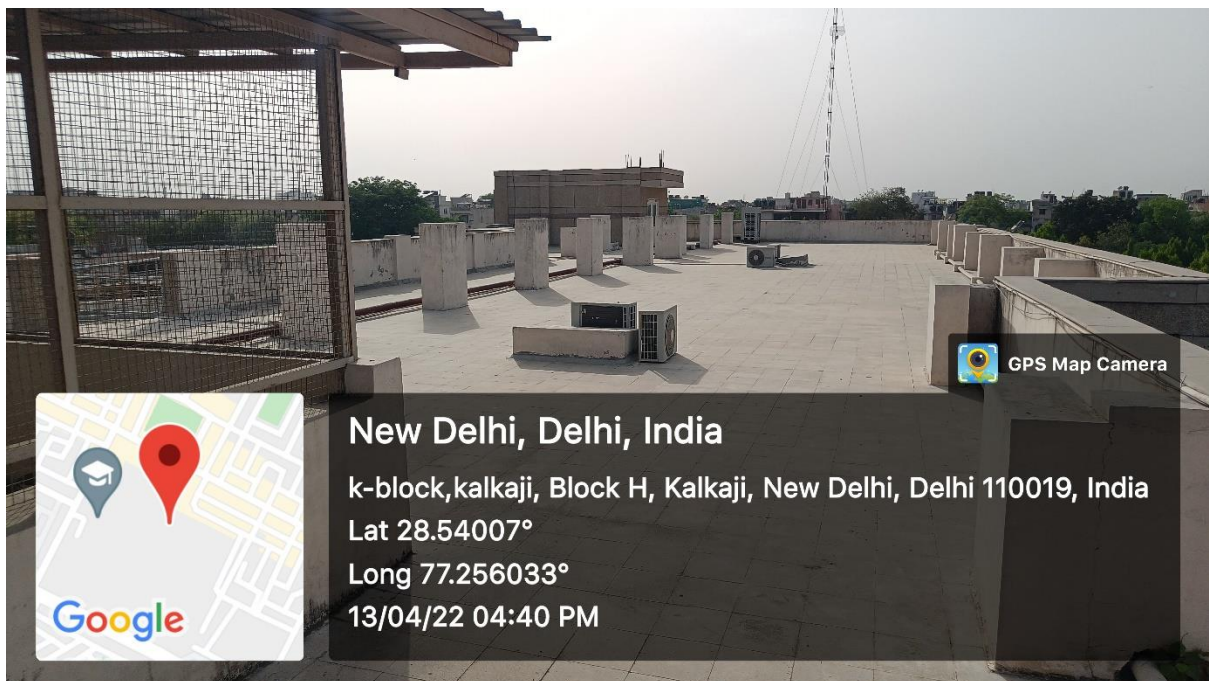


Figure.9 Neat and clean roof of our campus buildings for clean rainwater harvesting



Figure.10. Reverse Osmosis water treatment system

## ANNEXURE-V

### 6. Carbon Footprint

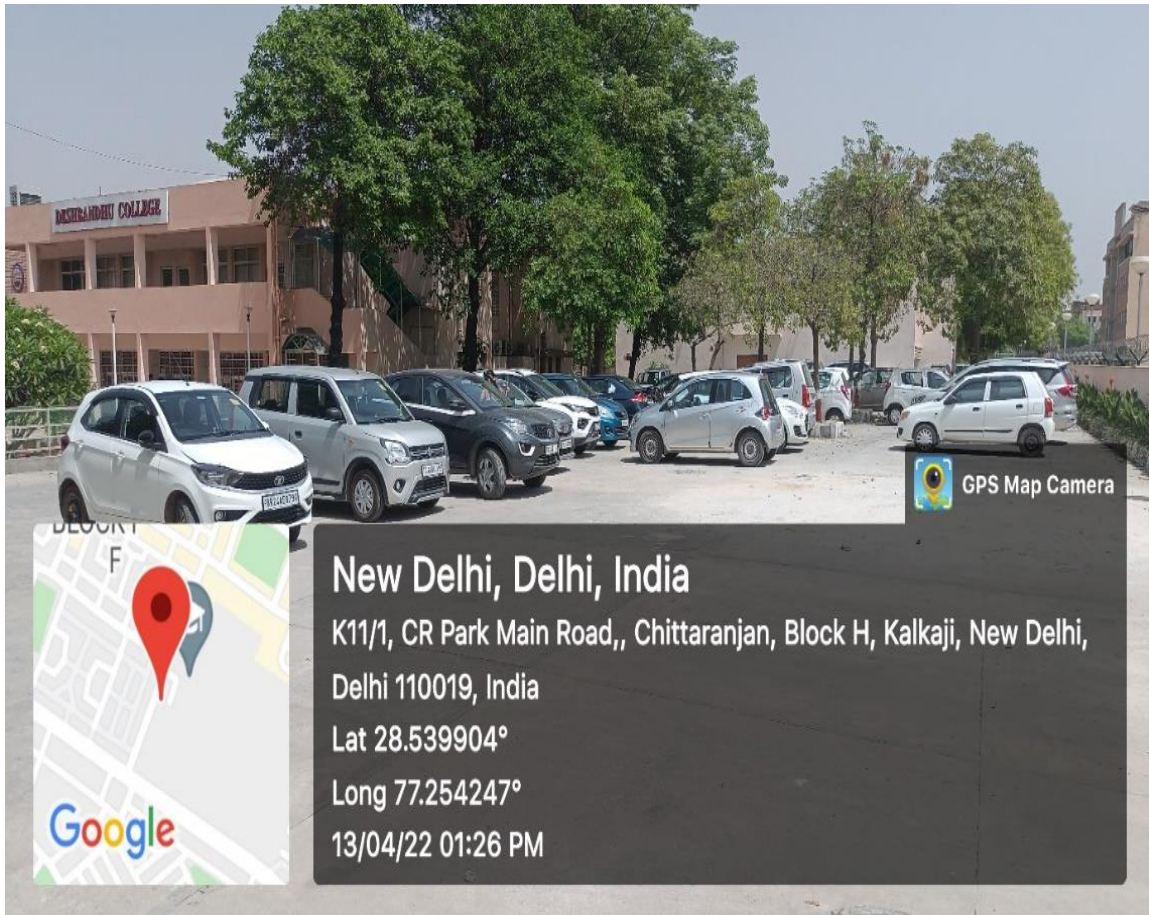


Figure.1 Vehicle in good conditions run by either petrol or CNG with PUC certificate and majority with BS-6 engine





**New Delhi, Delhi, India**

Unnamed Road, Block H, Kalkaji, New Delhi, Delhi 110019, India

Lat 28.539991°

Long 77.254768°

28/04/22 03:11 PM



**New Delhi, Delhi, India**

F-26, Front Portion, First Floor, Block H, Kalkaji, New Delhi, Delhi 110019, India

Lat 28.540182°

Long 77.2546°

28/04/22 03:10 PM



Figure.2 Various VRF units to increase energy efficiency in administrative building and new science block second floor of the college.

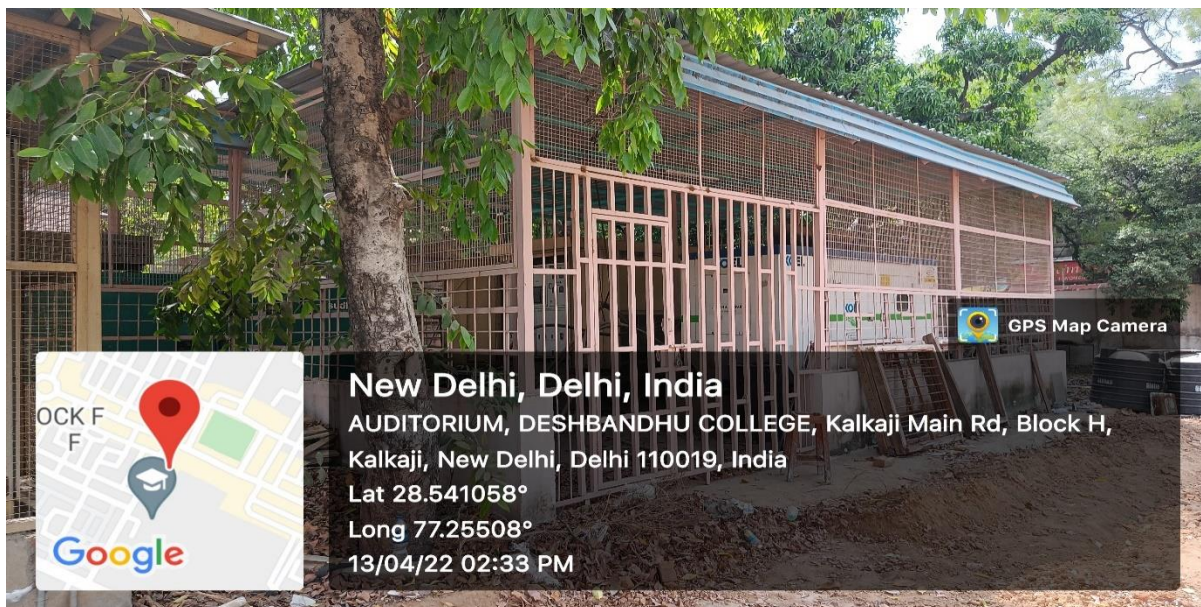


Figure.3 Modern Generator set for efficient use of electricity resources in the campus

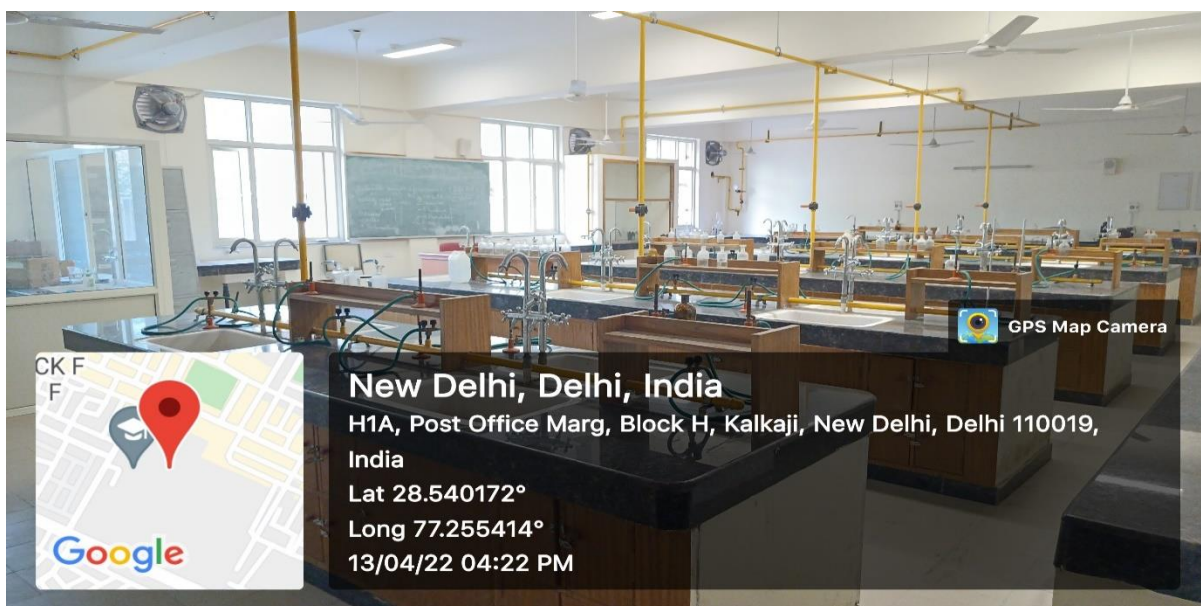
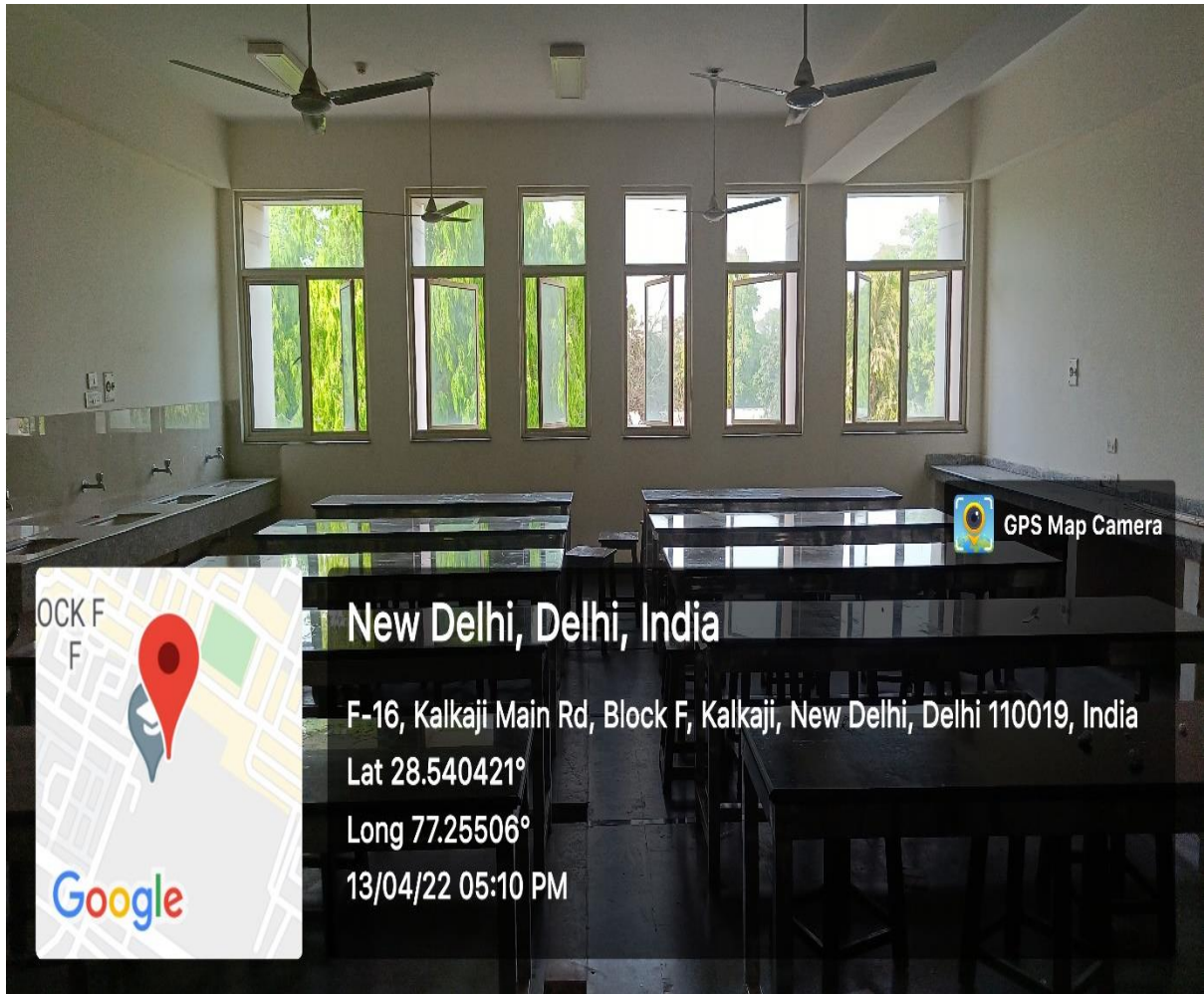


Figure.4 CNG pipelines in the chemistry laboratory and in various research laboratories for efficient use of natural gas resources

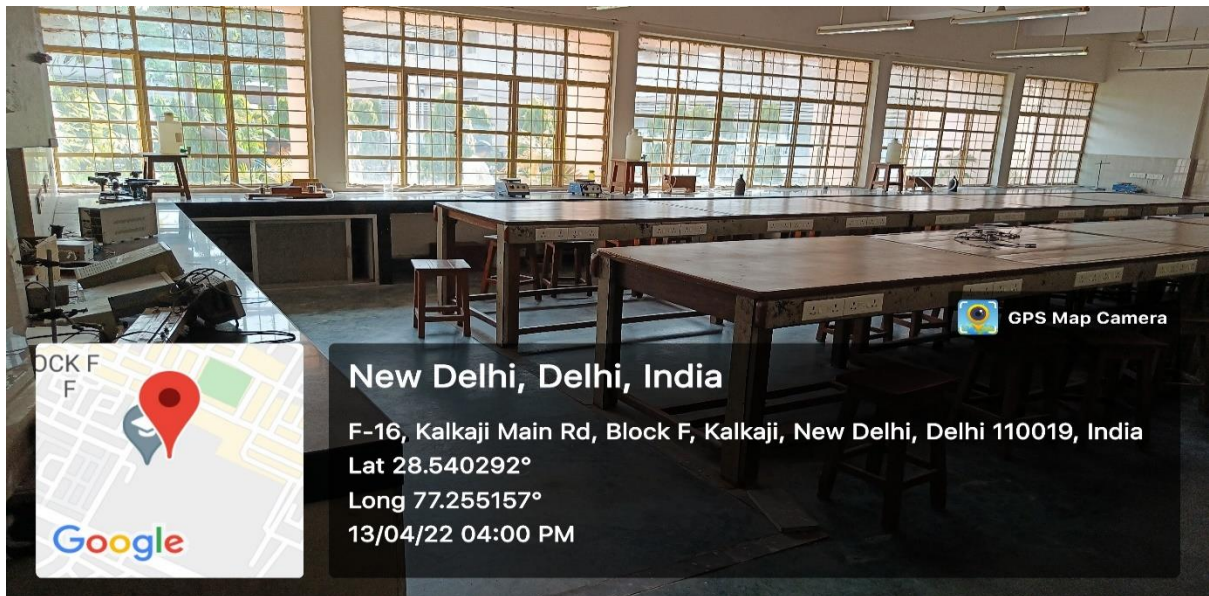
***7. Clean Air (Campus Desirable Ambient Air)***



Figure 1. Green cover over and around the classrooms for clean air and shades



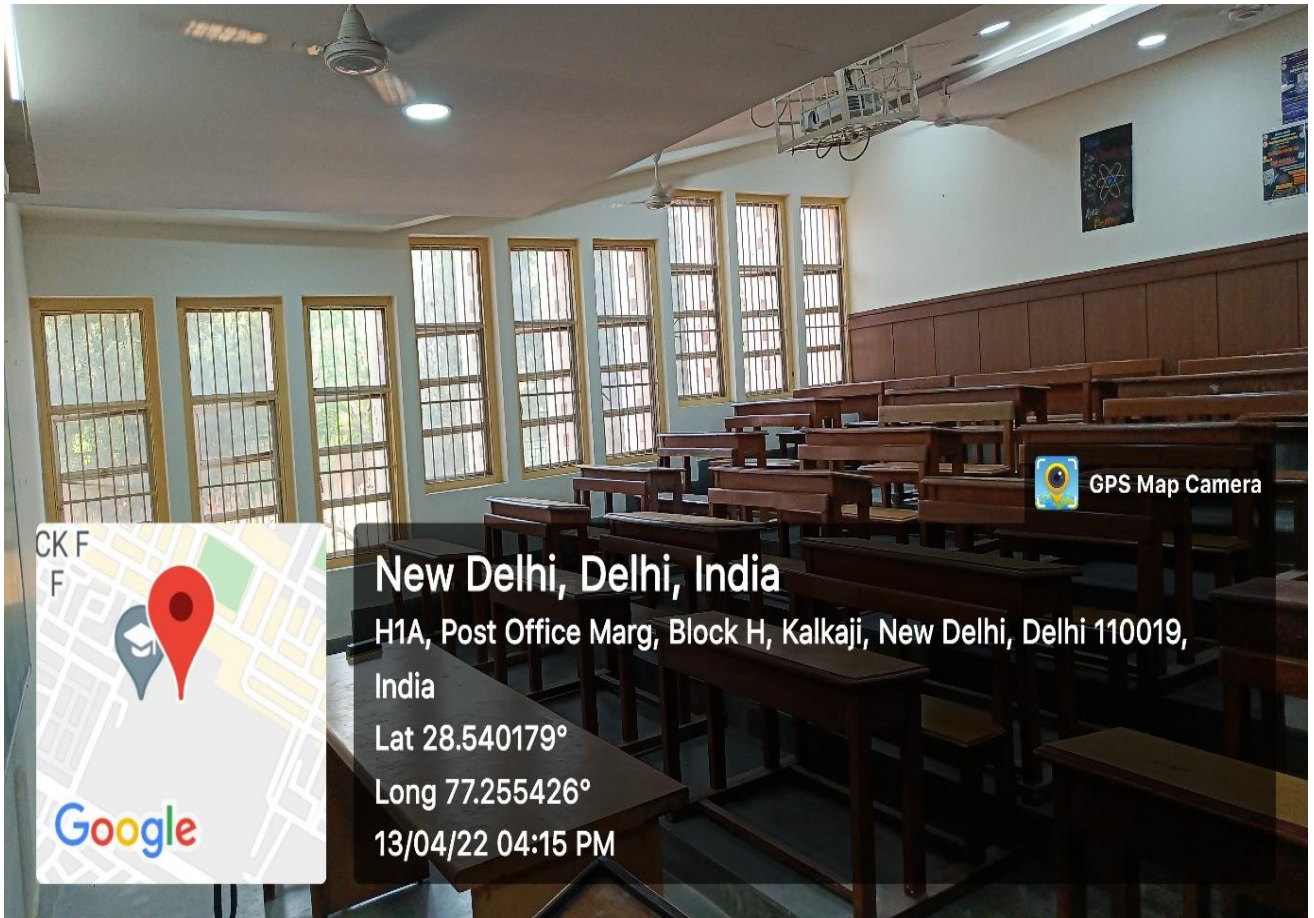
***Figure 2. Wide windows in the laboratory for clean air for ventilation and proper natural light***



*Figure 3. Wide windows surrounded with plants in the laboratory for clean air, ventilation and proper natural light*



*Figure 4. Wide windows in the classrooms for clean air and natural light.*



*Figure.5 Wide windows in the classrooms for clean air and natural light*



*Figure.6 Green trees along the pathways in backyards of the new block for clean air in the classes and the pathway*





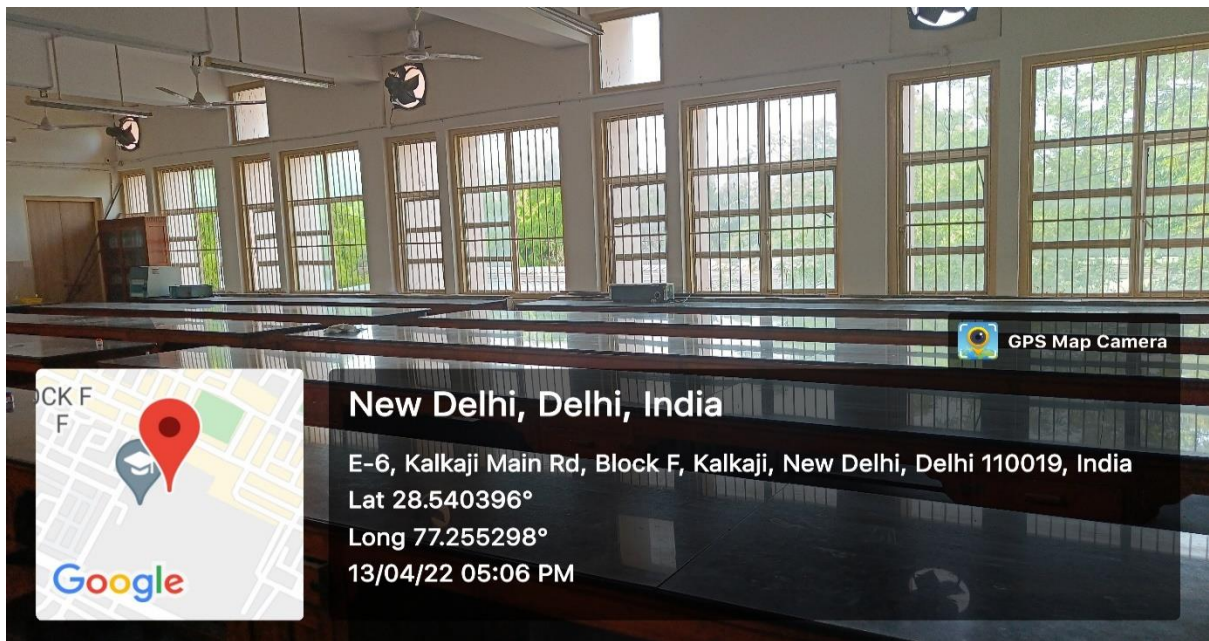
*Figure.7 Wide windows in the classrooms for clean air, proper ventilation and natural light during classes*



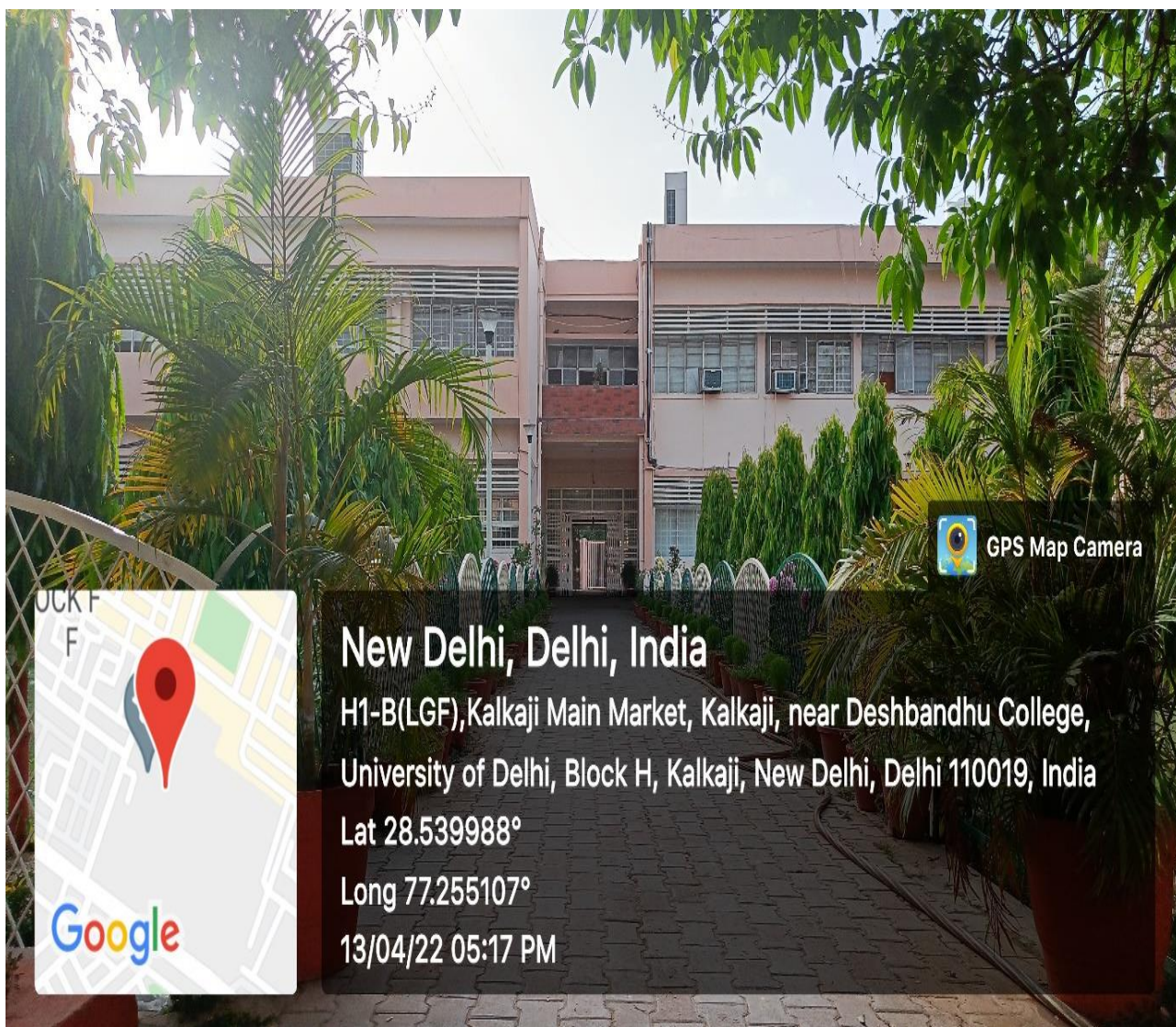
*Figure.8 Wide and spacious staircase in the new block for proper ventilation and natural light in the entire building*



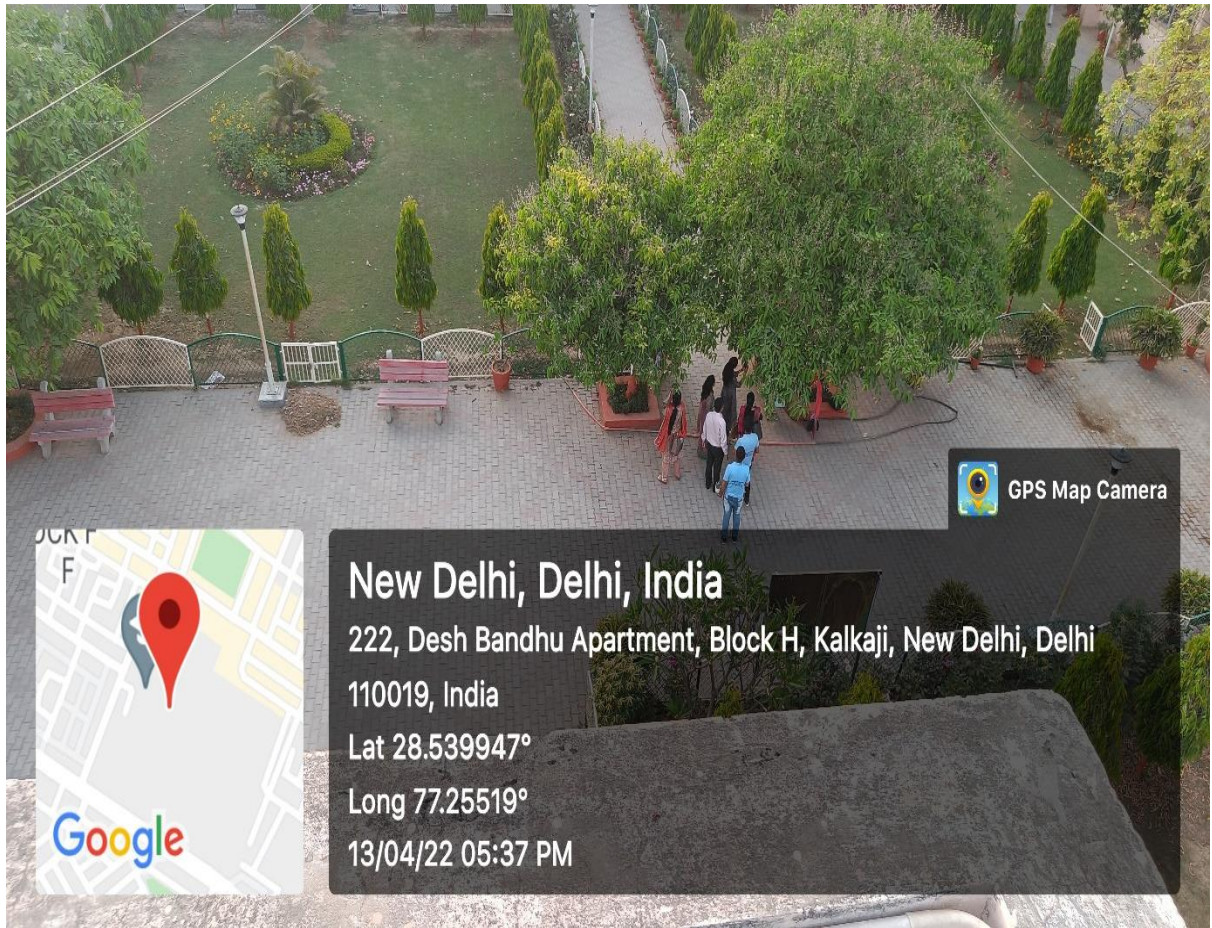
*Figure.9 Wide windows of the laboratories of various departments of our college for proper ventilation and ambient light*



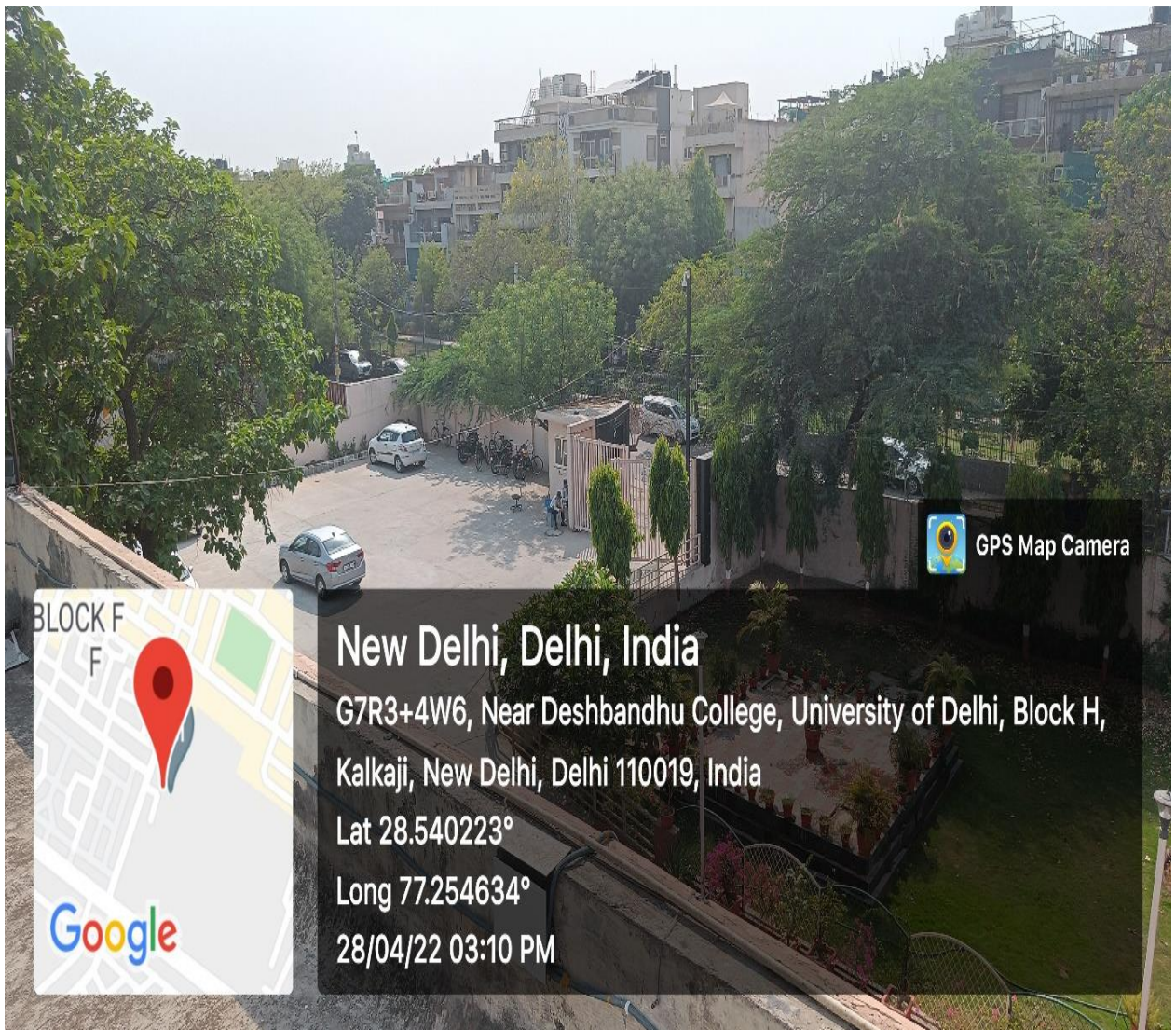
*Figure.10 Exhaust fans and windows on the entire length of the laboratory wall along with green trees outside for proper ventilation and clean air*



*Figure.11 Dense green cover around the campus corridors for clean air for healthy breathing*



*Figure.12 Plants around the campus for the dense green cover and clean air*



New Delhi, Delhi, India

G7R3+4W6, Near Deshbandhu College, University of Delhi, Block H,  
Kalkaji, New Delhi, Delhi 110019, India

Lat 28.540223°

Long 77.254634°

28/04/22 03:10 PM

*Figure.13 Plants around the campus for pollution free air*

**7. Resource Efficiency**



Figure 1. Medicinal plantation in the botanical garden developed by the usage of construction waste



Figure 2. Medicinal plantation in the botanical garden developed by the usage of construction waste

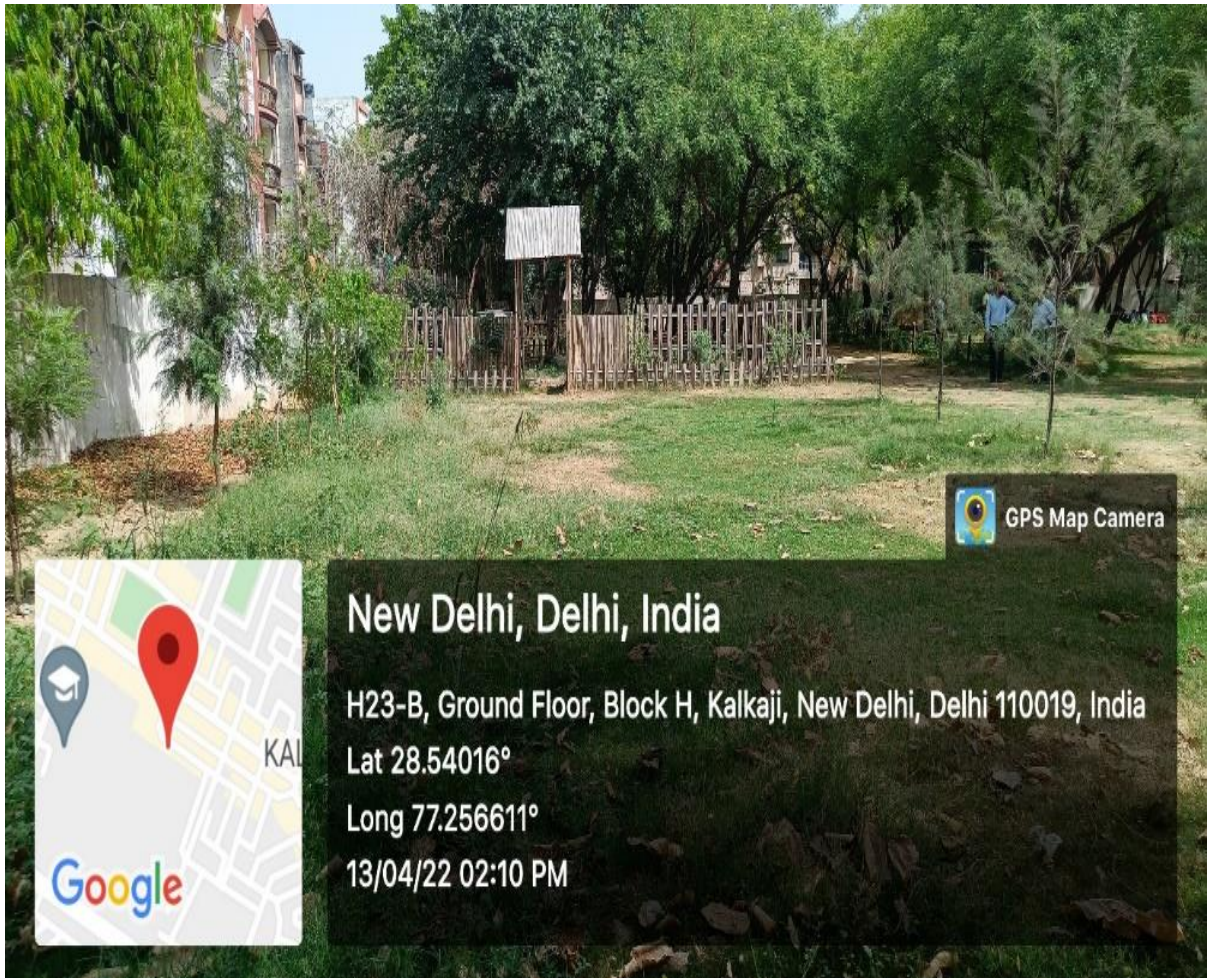


Figure 3. Bonsai garden of the campus developed by the usage of construction waste



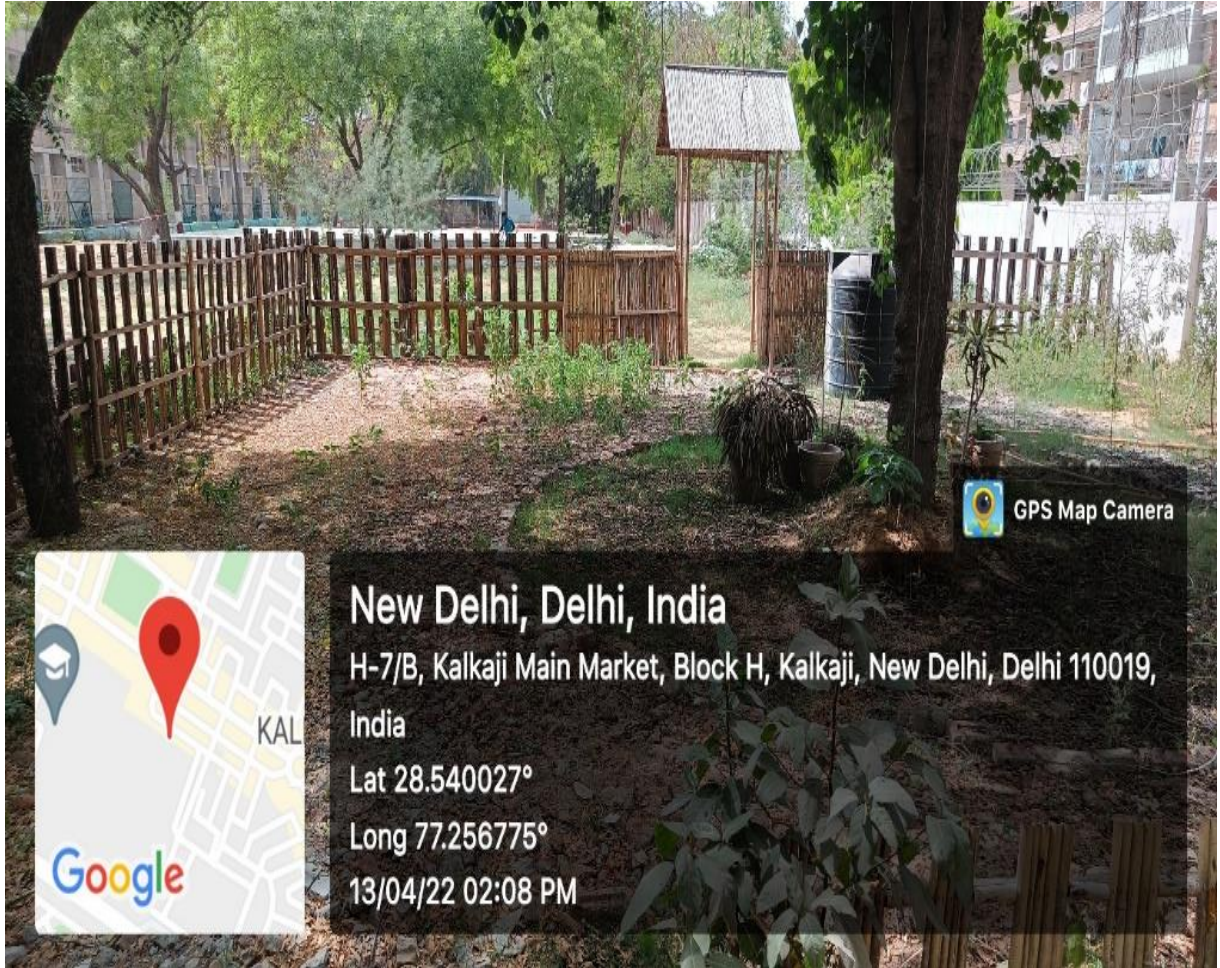


Figure 4. Bonsai garden of the campus developed by the usage of construction waste



Figure.5 Waste water storage tank used for watering to the plants



Figure.6 Modern Generator set for efficient use of electricity resources in the campus

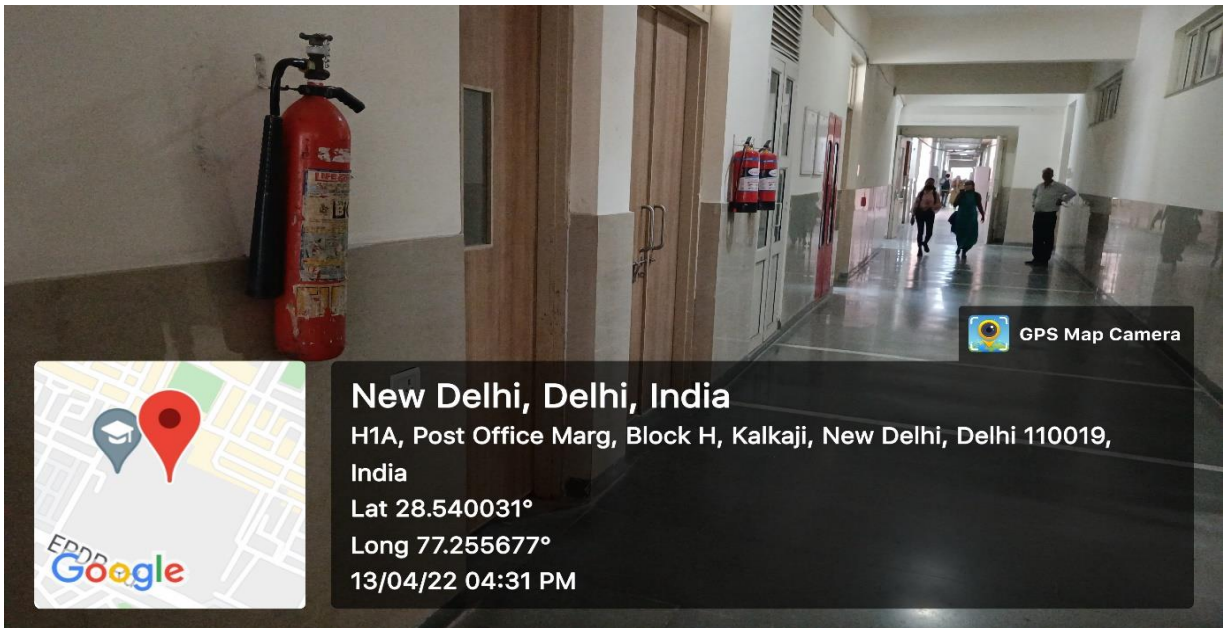


Figure.7 Fire extinguishers for the safety of the campus buildings

**8. Technological Innovations & Green Practices in Education**



Figure.1 Smartboard enabled classrooms along with latest technology

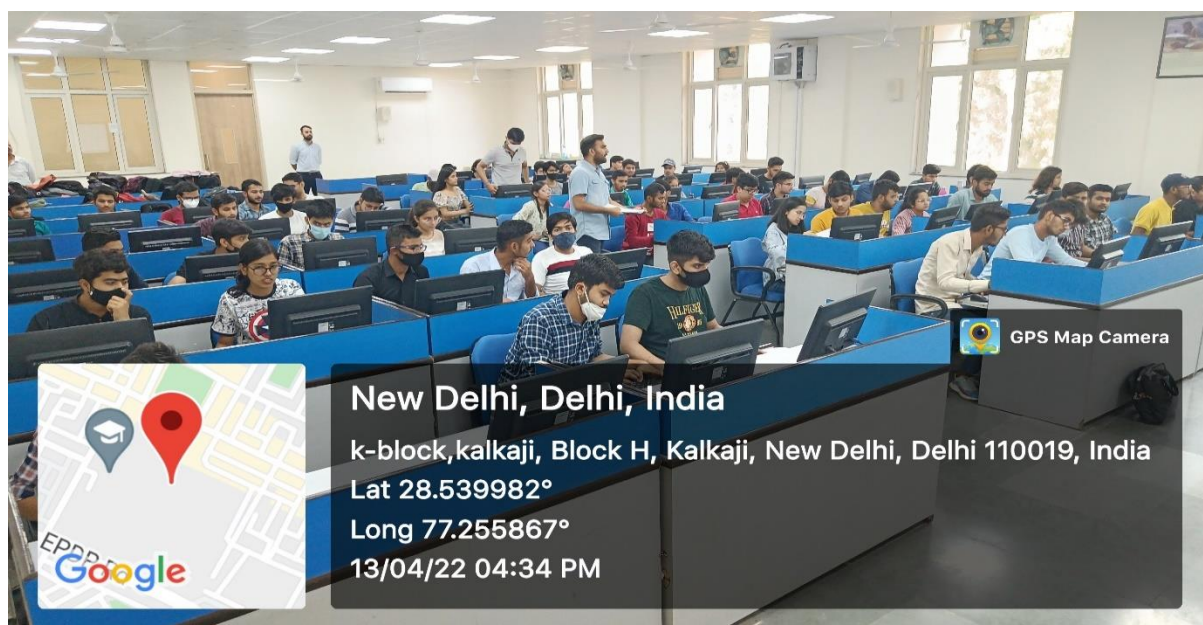


Figure.2 Computer-based classrooms for technology-based learning

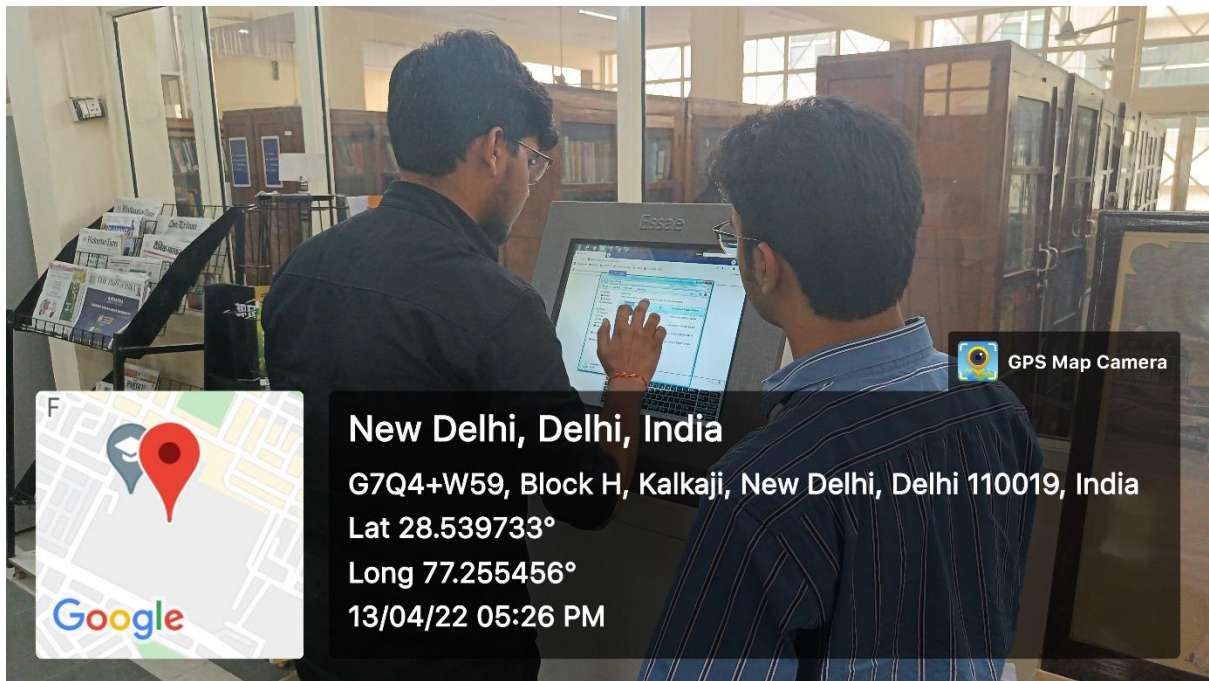


Figure.3 Touch screen information kiosk



Figure.4 Circulation section facility for computerized for easy and transparent transection of the books

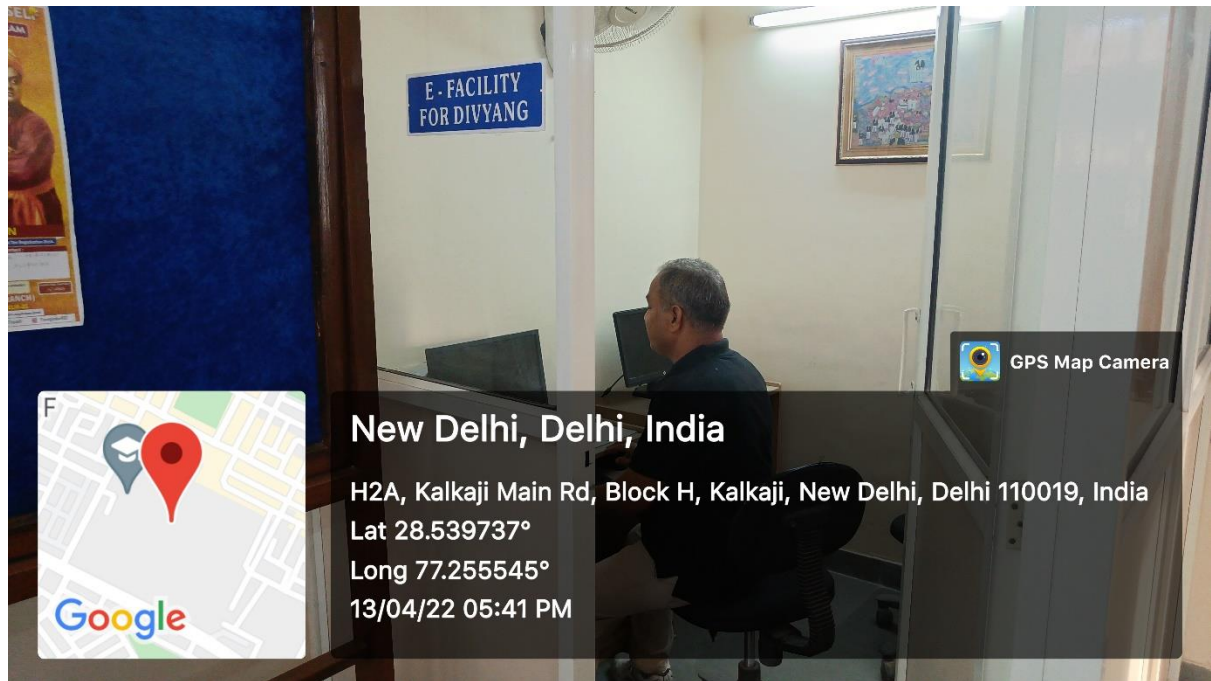


Figure.5 E-facility for Divyang in the library

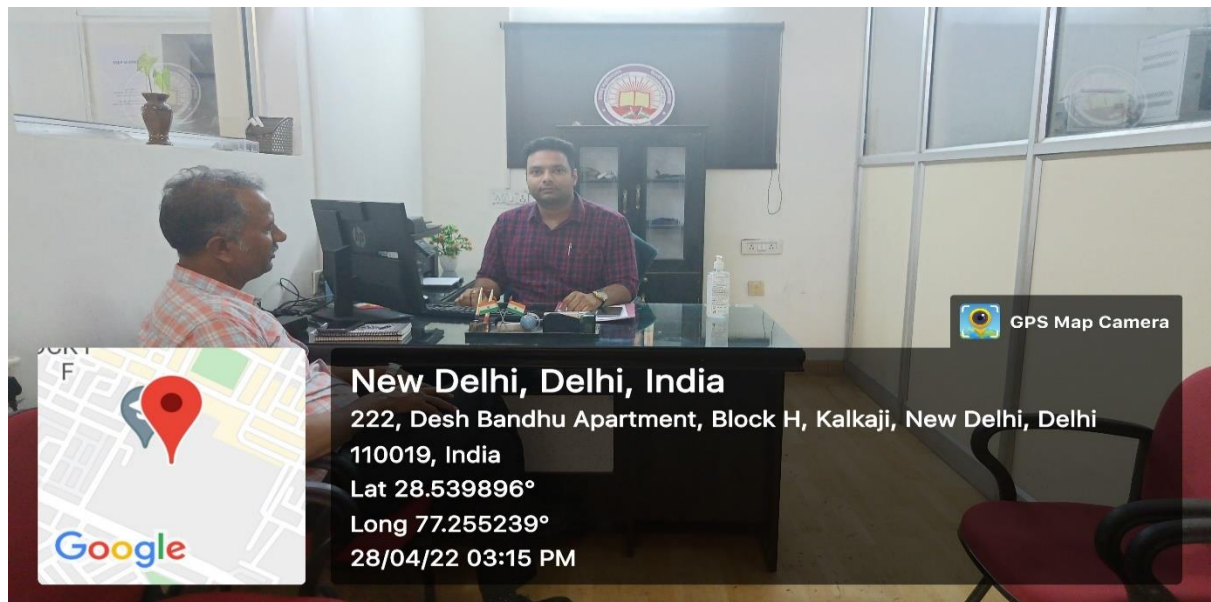


Figure.6 Web access centre of the college campus

**Environmental Legislation**

The Central Pollution Control Board's has released publication on "*Pollution Control Acts, Rules and Notifications issued thereunder*". The fourth Edition of this series was published in September, 2001. In the fifth edition of the Pollution Control Law Series, several Notifications, recently amended Rules and Notifications have been incorporated. In Schedule VI of the Environment (Protection) Rules, 1986 the following new standards have been incorporated:

1. Noise Limit for Generator Sets run with Diesel;
2. Emission Limits for new Diesel Engines (upto 800 KW) for Generator Sets (Gensets) Applications;
3. Emission Standards for Diesel Engines (Engine rating more than 0.8 MW (800 KW) for Power Plant, Generator Set) Applications and other Requirements;
4. Boilers Using Agriculture Waste as Fuel; and
5. Guidelines for Pollution Control in Ginning Mills.

The amendments with respect to the Hazardous Waste (Management and Handling) Rules, 1989, the Noise Pollution (Regulation and Control) Rules, 2000 and Recycled Plastics Manufacturer, Sale and Usage Rules, 1999 have been incorporated in the respective Rules. Several other amendment Notifications issued on Environment Impact Assessment (EIA), Coastal Regulation Zone (CRZ), Committees constituted pursuant to the Hon'ble Supreme Court orders, utilization of flyash have also been incorporated. In this edition, more than 650 pages containing the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Water (Prevention and Control of Pollution) Cess Act, 1977, the Environment (Protection) Act, 1986 and their Rules and Notifications were retyped to ensure better quality of printing. The content pages have also been rearranged so that all the Acts, Rules and Notifications could be seen at a glance.

**Social Welfare and Community Outreach**

**Deshbandhu college involves in various social activities, few are Tabulated below:**

Sl. No.	Event Date	Activities by Deshbandhu College, New Delhi
1)	5 <sup>th</sup> JULY, 2021 INTERACTIVE SESSION ON PSYCHOSOCIAL SUPPORT FOR COVID PANDEMIC SITUATION	MGNCRE, Department Of Higher Education, Ministry Of Education GOI in collaboration with NSS Unit of Deshbandhu College, University of Delhi organized an interactive session on the topic "Psychosocial support for Covid pandemic situation ( Covid helper's skill for student community )" by Neha Dagar (Resource person MGNCRE), Ministry Of Education, Government Of India. Objectives: 1. At the end of the workshop participants will acquire skills to enable their students to become Covid warriors to fight the pandemic. 2. Will be equipped with skills needed to encourage students to take part in Covid service.
2)	23rd JULY, 2021 VIRTUAL TALK ON IVF (IN VITRO-FERTILIZATION)	"Biology is the most powerful technology ever created. DNA is software, protein is hardware and cells are factories "Department of Zoology, Deshbandhu College (University of Delhi) under the aegis of IQAC and DBT Star College Scheme is organized a Virtual Talk on IVF (In Vitro-Fertilization) by Speaker Dr. Nidhi Gupta, MBBS, MS, DNB, FAMS, Assistant Professor, HIMSR, Jamia Hamdard University.
3)	23rd JULY, 2021 LECTURE ON TECHNICAL WRITING SKILLS & ITS FUTURE PROSPECTS	Wall Magazine Re"active", Department of Chemistry, Under DBT Star College Scheme, Deshbandhu College, organized a lecture series on: Technical Writing Skills & its future prospects. Speaker of the session was Mr. Rajesh Goyal, Former Director, Defense Research & Development Organization (DRDO), Ministry of Defense, Present Engagement: -Consultant IDST, DRDO, Member Board of Studies AMITY University.
4)	23rd JULY, 2021 PLANTATION DRIVE	The NSS Unit of Deshbandhu College in collaboration with Harela Foundation is organized a Plantation Drive in the college premises.
5)	24th JULY, 2021 WEBINAR ON "AVENUES IN PUBLIC HEALTH CARE"	Deshbandhu College in association with Indian Institute of Public Health- Delhi, Public Health Foundation of India organized a Webinar on "Avenues in Public Health Care". Speaker of the session was Dr. Habib Hasan Farooqui, MBBS, MD, Additional Professor, Indian Institute of Public Health- Delhi, Public Health Foundation of India. He emphasized on the importance of research in Public Health area. The participants asked questions related to various aspects of Public Health Care sector. Dr Farooqui answered all the questions very patiently and resolved many careers related queries from student as well as faculty participants. The webinar was attended by above 110 students from different fields. Faculty from different departments of Deshbandhu College and some other colleges also joined.
6)	26th JULY, 2021 WEBINAR AS A MEMOIR OF THE KARGIL VIJAY DIWAS	The NSS Unit of Deshbandhu College organized a Webinar as a Memoir of the Kargil Vijay Diwas. Guest Speaker was Lt. Colonel Dr. Rajan Gupta, AMC, UN Cell In charge. Participants remembered and mourned the lives of Brave Martyrs and the sacrifices they all made.
7)	17th JULY, 2021 ALUMNI LECTURE ON "MENDELIAN GENETICS IN GENOMICS STUDIES"	Department of Botany, Deshbandhu College, University of Delhi organized 1 <sup>st</sup> Annual Dr Dharmendra K Mallick memorial Alumni lecture on "Mendelian Genetics in Genomics Studies" by speaker Dr. Kuldeep Kumar, Scientist, Division of Plant Biotechnology, ICAR-IIPR, Kanpur, UP. It was a special moment to remember and to pay our tribute to (Late) Dr Dharmendra K Mallick, esteemed former colleague and an outstanding botanist.
8)	July 28 <sup>th</sup> 2021 World Nature Conservation Day	On the occasion of World Nature Conservation Day NSS Unit of Deshbandhu College organized an Article Writing Competition on various themes like Climate change and Millennium Development Goals., Challenges in energy transition from fossil fuels to renewables.
9)	31st JULY, 2021 INTERNATIONAL WEBINAR ON PROTEIN STRUCTURE AND FUNCTION: PENTAFUNCTIONAL AROM COMPLEX	"We need to apply the science of communication to the communication of science" - Preston Manning Department of Biochemistry and IQAC, Deshbandhu College, University of Delhi under the aegis of DBT Star College Scheme on the occasion of release of its annual departmental magazine, Biospark'21 e-Magazine (Pandemic Edition) organized an International Webinar on Protein Structure and Function: Penta-functional AROM complex Speaker of the session was Dr. Harshul Arora Veraszto, Postdoctoral Research Fellow, University of Geneva, Switzerland.



**5<sup>th</sup> JULY, 2021**  
**INTERACTIVE SESSION ON PSYCHOSOCIAL SUPPORT FOR COVID PANDEMIC SITUATION**

MGNCRE, Department Of Higher Education, Ministry Of Education GOI in collaboration with NSS Unit of Deshbandhu College, University of Delhi organized an interactive session on the topic “Psychosocial support for Covid pandemic situation ( Covid helper’s skill for student community )” by Neha Dagar (Resource person MGNCRE), Ministry Of Education, Government Of India.



Objectives:

1. At the end of the workshop participants will acquire skills to enable their students to become Covid warriors to fight the pandemic.
2. Will be equipped with skills needed to encourage students to take part in Covid service.



**23<sup>rd</sup> JULY, 2021**  
**PLANTATION DRIVE**

The NSS Unit of Deshbandhu College in collaboration with Harela Foundation is organised a Plantation Drive in the college premises.



**28<sup>th</sup> – 30<sup>th</sup> JULY, 2021**  
**SKILL DEVELOPMENT WORKSHOP**

Cyfle in collaboration with Microsoft Office Specialist & Microsoft Certified Trainer (MOS and MCT) from Kolkata, Mr. Mukesh Poddar brought a valuable opportunity to brisk up your pace of growth in corporate-relevant skills with 3 days of wonderful learning.

Today's trend in the corporate macrocosm is that most of the employers expect the applying candidate to be pre-equipped with corporate related skills like Excel, Word and PowerPoint.

A good grasp over these skills of utmost importance to stand out amongst your peers and to be second to none in any corporate interview.

This 3-day-workshop assisted the students in checking their ability and competence in recent times. It was also extremely beneficial in preparing amazing Reports, Charts, Presentations, and Excel files.

Cyfle, The Placement Cell, Deshbandhu College  
presents  
**SKILL DEVELOPMENT WORKSHOP**  
**SPEAKERS FOR THE SESSION**

 Mr. Mukesh Poddar MOS Trainer	 Mr. Naveen Kejriwal Judge	 Ms. Sophia Singh Guest Speaker	 Ms. Isha Bagga Guest Speaker
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**3 DAYS SKILL WORKSHOP ON :-**

- MS EXCEL
- MS POWERPOINT
- MS WORD

**28<sup>th</sup>-30<sup>th</sup> July, 2021**  
**3pm - 6pm**  
**Platform- ZOOM**

Dr. Rajiv Aggarwal Principal, Deshbandhu College	Dr. Aditya Saxena Coordinator, IQAC	Dr. Surabhi Dhingra Convenor, Placement Cell	Parkhi Kataria Student Coordinator 9818675867
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E-CERTIFICATES WILL BE PROVIDED TO ALL THE PARTICIPANTS

**24<sup>th</sup> JULY, 2021**  
**WEBINAR ON “AVENUES IN PUBLIC HEALTH CARE”**

Deshbandhu College in association with Indian Institute of Public Health-Delhi, Public Health Foundation of India organized a Webinar on “Avenues in Public Health Care”. Speaker of the session was Dr. Habib Hasan Farooqui, MBBS, MD, Additional Professor, Indian Institute of Public Health- Delhi, Public Health Foundation of India. He emphasized on the importance of research in Public Health area.

The participants asked questions related to various aspects of Public Health Care sector. Dr Farooqui answered all the questions very patiently and resolved many careers related queries from student as well as faculty participants. The webinar was attended by above 110 students from different fields. Faculty from different departments of Deshbandhu College and some other colleges also joined.

Deshbandhu College, University of Delhi (under the aegis of IQAC)  
in association with  
**Indian Institute of Public Health-Delhi, Public Health Foundation of India**  
Invites you for a Webinar on  
**AVENUES IN PUBLIC HEALTH CARE**

The webinar is aimed to inform and educate students about Public health and its relevance, different job opportunities in Public Health Care and the courses offered at Public Health Foundation of India (PHFI).

<b>Saturday</b> 24 <sup>th</sup> July 2021 Time: 11:00 am (IST) Platform: Zoom		<b>Dr. Habib Hasan Farooqui</b> MBBS, MD (Community Medicine) Additional Professor Indian Institute of Public Health-Delhi Public Health Foundation of India
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**Zoom Link:** <https://us02web.zoom.us/j/81647808957?pwd=bjBHMjZUYmVjUjVmMHRPcGFJTUoHZk09>

**CONVENERS**

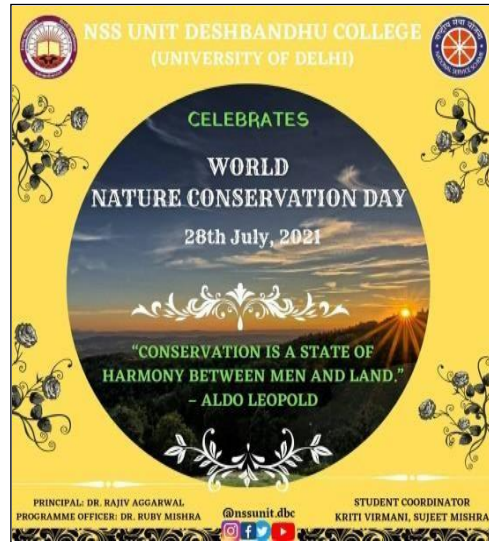
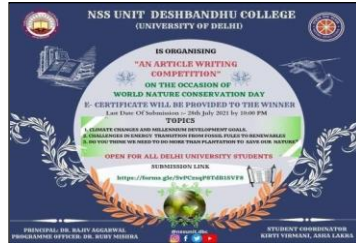
<b>Prof. Rajiv Aggarwal (Principal)</b>	Dr. Shalender Singh Chauhan, Librarian
<b>Dr. Aditya Saxena (Coordinator, IQAC)</b>	Dr. Aparna Nautiyal, Department of Botany
	Dr. Anand Kumar, Department of Sanskrit

Event Coordinator - Dr. Madhu Rani, Department of Botany

E-Certificates will be provided to participants on filling the feedback form provided during the webinar in the chat box.

**JULY 28<sup>TH</sup> 2021  
WORLD NATURE CONSERVATION DAY**

On the occasion of World Nature Conservation Day NSS Unit of Deshbandhu College organised an Article Writing Competition on various themes like Climate change and Millennium Development Goals., Challenges in energy transition from fossil fuels to renewables.



**3<sup>rd</sup> AUGUST, 2021  
PLANTATION DRIVE**

Spirited Volunteers of NSS Unit, Deshbandhu College in collaboration with South Delhi Municipal Corporation (SDMC) organised a plantation Drive. The motive Behind such initiative was to restore the ecology and uplift the quality of our living Environment



## 12<sup>th</sup> AUGUST, 2021 CLEANLINESS DRIVE

"Cleanliness is a state of Purity, Clarity and Precision".

The NSS Unit of Deshbandhu College had organised a Cleanliness Drive on 12th August, 2021 with the aim of Cleaning the College Campus and nearby areas like parks. As a part of this drive, the volunteers of the Unit got together with great enthusiasm to make this drive a huge success.

The volunteers were quite active in cleaning the areas and making it look neat and tidy. We would like to appreciate all who made an effort to be a part of this drive and work towards the well being of nature and the society as well. Even after the ongoing COVID - 19 crisis, our volunteers did not step back of performing their duties as responsible citizens.



## 14<sup>th</sup> AUGUST SWACHATA PLEDGE BY GOVERNMENT OF INDIA

More than 50 spirited Volunteers of NSS Unit, Deshbandhu College took part in Swachhata Pledge administered by the Government of India as the part of 'Swachhata Pakhwada' or Clean India Mission to general mass to keep India Clean & green.



## 1<sup>st</sup> – 7<sup>th</sup> SEPTEMBER, 2021 NATIONAL NUTRITION WEEK

NSS Unit, Deshbandhu College celebrated National Nutrition Week from 1<sup>st</sup> to 7<sup>th</sup> September, 2021. The theme for which was "Feeding Smart Right From Start". To Mark the week NSS Unit organized various competitions & sessions to make people understand the Importance of nutritional & adaptive eating habits for a healthy lifestyle. Apart from fruit distribution drive, task- videos and pictures, and live quiz activities, a webinar was also organized where Dr. Vivek Dixit, a Senior Scientist, Department of Orthopaedics, AIIMS Delhi was the eminent speaker. His main focus was on vitamin D, its importance and methods of consumption.



## 1<sup>st</sup> – 15<sup>th</sup> SEPTEMBER, 2021 SWACHHTA PAKHWADA

NSS Unit of Deshbandhu College successfully organised 'Swachhta Pakhwada' from 1<sup>st</sup> September to 15<sup>th</sup> September, 2021. The 15-day long Cleanliness drive was in accordance with Government of India initiative. The idea behind such initiative was to give a platform to local people where they could participate in activities and imbibe the value of cleanliness in their day to day activities. NSS Unit too under Swachhta Pakhwada planned series of events to engage its volunteers & help them. The major events were Swachhta pledge, plotting plants in recyclable bottles, slogan writing and poster making competitions, cleanliness drive, cleaning neighbourhood, best out of waste, plantation drive, swachhta rally and a webinar on "Characterisation of particulate matter: implication to human health and climate".



**9<sup>th</sup> SEPTEMBER, 2021**  
**WEBINAR on SOCIO- ECONOMIC DEVELOPMENT OF RURAL INDIA.**

"The Mission of Unnat Bharat Abhiyan is to enable higher educational institutions to work with the people of rural India in identifying development challenges and evolving appropriate solutions for accelerating sustainable growth."

The UBA Cell of Deshbandhu College in Collaboration with IQAC, NSS UNIT and YUVA is organised a NATIONAL WEBINAR on **SOCIO- ECONOMIC DEVELOPMENT OF RURAL INDIA.**

- Guest of honour:-IAS Mrs Ankita Chakravarty (District Magistrate, South Delhi)
- Chief Guest:- Prof. Vivek Kumar (Indian Institute of Technology, Delhi)
- Keynote speaker:- Prof. Anil Kumar (Shri Ram College of Commerce, DU)

**DESHBANDHU COLLEGE**  
UNIVERSITY OF DELHI

in collaboration with  
**IQAC and NATIONAL SERVICE SCHEME**  
is organizing  
**NATIONAL WEBINAR**  
under  
**UNNAT BHARAT ABHIYAN**  
On  
**TOPIC - SOCIO-ECONOMIC DEVELOPMENT OF RURAL INDIA**

**KEYNOTE SPEAKER**  
Prof. Anil Kumar  
SHRI RAM COLLEGE OF COMMERCE  
DU UNIVERSITY

**GUEST OF HONOUR**  
IAS Mrs. Ankita Chakravarty  
District Magistrate, South Delhi

**CHIEF GUEST**  
Prof. Vivek Kumar  
Indian Institute of Technology  
Delhi

**Moderator (UBA)**  
DR. SEEMA GUPTA

**DATE:** 9th September 2021  
**TIME:** 11:00am  
**VENUE:** Zoom  
[zoom link](#)

**For registration: click on the icon.**

Principal : Dr. Rajiv Aggarwal    Coordinator (IQAC) : Dr. Aditya Saxena    TEACHER COORDINATOR (UBA) : Dr. Ashwani Kumar Singh    STUDENTS COORDINATOR : Manish Rajput  
 Coordinator (UBA) : Dr. Varsha Baweja    Coordinator (NSS) : Dr. Ruby Mishra    Dr. Sankhi Tamar    Suraj Sharma  
 Coordinator (YUVA) : Dr. Ajay Pratap Singh

**16<sup>th</sup> SEPTEMBER, 2021**  
**AN INTERNATIONAL WEBINAR ON WORLD OZONE DAY 2021**

Department of Zoology, Deshbandhu College, University of Delhi organized an International Webinar on "WORLD OZONE DAY 2021"; International Day for the Preservation of the Ozone Layer, under the aegis of IQAC and DBT Star College Scheme.

"Let's understand the impact of air quality and climate change on the health of our mother nature and its components, including us..."

**DEPARTMENT OF ZOOLOGY**  
**DESHBANDHU COLLEGE**  
(UNIVERSITY OF DELHI)  
(Under the aegis of IQAC and DBT Star College Scheme)

Invites you to the  
**INTERNATIONAL WEBINAR ON**  
**"WORLD OZONE DAY 2021"**  
(International Day for the Preservation of the Ozone Layer)

**MEET OUR SPEAKERS**

Dr. Rajesh Kumar  
Project Scientist III,  
National Center for  
Atmospheric Research,  
Colorado, USA

Dr. Sagnik Dey  
Associate Professor  
Centre for Atmospheric  
Sciences, IIT Delhi

Dr. Amit Kumar Mishra  
Assistant Professor  
School of Environmental  
Sciences, JNU, Delhi

The honor of your presence  
is requested...

**16th September, 2021**  
09:00 am. Onwards  
[Registration Link](#)

OR  
Scan QR

*"Let's understand the impact of air quality and climate change on the health of our mother nature and its components, including us..."*

Convenors: Dr. Manisha Sengupta, Dr. Sandhya Rai, Dr. Moses Rinchu (BIODIVERSITY CLUB)  
 Co-ordinator: IQAC, Dr. Aditya Saxena  
 Co-ordinator: DBT Star College Scheme, Dr. Indrakant K. Singh  
 Principal: Dr. Rajiv Aggarwal

## 16<sup>th</sup> SEPTEMBER, 2021 VIRTUAL TALK ON “प्रकृति के प्रश्न:”

On the occasion of World Ozone Day 2021, Department of Botany, Deshbandhu College, University of Delhi\* (under the aegis of IQAC and DBT-Star College Scheme) organised a virtual talk on “प्रकृति के प्रश्न:” by Padma Bhushan (2020) & Padma Shree (2006) awardee Dr Anil Prakash Joshiji, fondly known as Mountain man. The Program was Presided by Chief Guest Honorable Prof PC Joshi, Acting Vice Chancellor, University of Delhi.

## 28<sup>th</sup> September, 2021 NSS DAY CELEBRATIONS

NSS Unit, of Deshbandhu College celebrated this NSS Day with a replenished zeal to do well for the society and spread the Motto "NOT ME BUT YOU". The idea was to encourage people for trying to help others, and be the change you want to see in the world

The cloth donation drive and plantation driven were the major events



**25<sup>th</sup> SEPTEMBER, 2021**  
**A VIRTUAL JUNGLE SAFARI TOUR OF DUDHWA TIGER RESERVE**

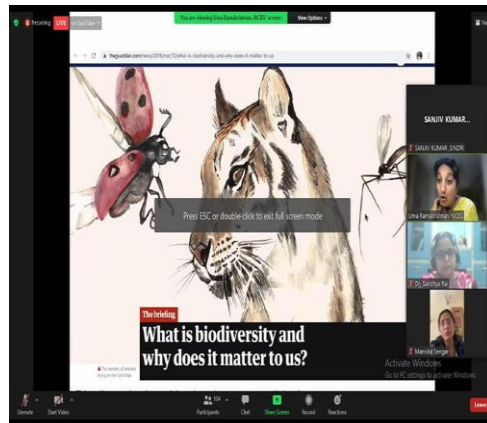
Department of Zoology, Deshbandhu College organised “A virtual Jungle Safari Tour of Dudhwa Tiger Reserve” under the aegis of DBT Star College Scheme and IQAC. The Event was led by Co-ordinator Mr. Vikrant Nath and Camp Leader Ms. Deepthi to discover the Forest, Grassland, Rivers, Wildlife and Flora. These events are organised with the objective to provide a platform for the students to understand about our nature and its importance in our life. The participants got to know about the vivid location of the Reserve as it is situated in Himalayan Terai region with excellent woodland sharing its boundaries with Nepal and surrounded with Suheli and Mohana streams and Sharda River flows.



**4<sup>th</sup> -9<sup>th</sup> OCTOBER, 2021**  
**THE WILDLIFE WEEK- WILD-O-VIGUS**

The Department of Zoology, Deshbandhu College, commemorated “The Wildlife Week- Wild-O-Vigus” from the 4th to 9th of October, 2021 under the auspices of IQAC and the DBT Star College Scheme, in which students’ fun events were organised throughout the week as well as a talk by an eminent molecular ecologist Prof. Uma Ramakrishnan on the 9th October to raise awareness about wildlife conservation. Over the course of week 6 events were hosted which were as follows:

- “FRAME THE FAUNA,” (photography competition) in which contestants were asked to photograph the animals in their physical vicinity.
- “CREATE A CANVAS” (poster-making competition) in which participants were required to create a poster with the topic “We’re not the only species, therefore live and let live”
- “MEMEMANIA,” in which participants were given a template and instructed to create a meme about wildlife to promote a good attitude towards wildlife
- “KEYWORD HUNT,” a riddle and puzzle game
- “ZOOTOPIA” consisted of three rounds: Emojology, Camouflagellator, and Wild Decibel.
- “RELAY THE GRAY,” an intellectual quiz tournament to evaluate wildlife awareness





**12<sup>th</sup> OCTOBER, 2021**  
**YAMUNA CLEANLINESS CAMPAIGN**

The NSS Unit of Deshbandhu College in collaboration with South Delhi Municipal Corporation organised a Yamuna Cleanliness Campaign on 12th October 2021, to clean the Ghat of Yamuna. The Chief Guest Sri. Santosh Dinesh Tank (Municipal Councillor. The prime objective of the event was to inculcate a sense of responsibility towards the environment and its cleanliness in the young minds so they can contribute towards a clean and healthy environment.



**21<sup>st</sup> OCTOBER, 2021**  
**BREAST CANCER WEEK**

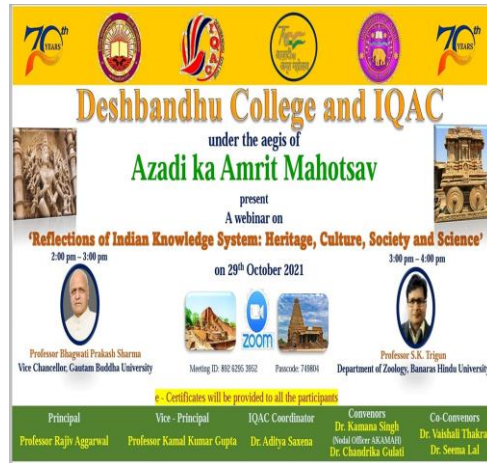
NSS Unit of Deshbandhu College observed the week long Breast Cancer Awareness Week by engaging its volunteers in a series of activities that included Poster Making, Creating Videos and uploading on Social Media Handles to raise awareness and reduce the stigma of breast cancer through education on symptoms and treatment. The Unit also posted various posters on its social Media Handles giving information regarding the causes, symptoms, treatments, and preventative measures as to help everyone detect the early signals and event prevent the grave disease.



**29<sup>th</sup> October, 2021**  
**Webinar on "Reflections of Indian Knowledge system: Heritage, Culture, Society and Science"**

Azadi ka Amrit Mahotsav Committee of Deshbandhu College, University of Delhi organized a webinar on "Reflections of Indian Knowledge System: Heritage, Culture, Society and Science" on October 29th, 2021 to celebrate 75 years of independence and 70th year of the foundation of Deshbandhu College

The programme started with Saraswati Vandana. Dr. Chandrika Gulati, Convenor AKAMAH Committee, DBC introduced the programme of the day. This was followed by a detailed introduction by Dr. Kamana Singh, Nodal Officer and Convenor, AKAMAH who also invited Vice principal Prof. Kamal Kumar Gupta to give the welcome address and introduce the first speaker Prof. Bhagwati Prakash Sharma.



**31st October, 2021- National unity day**

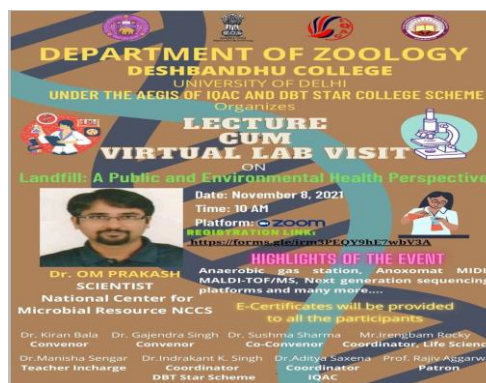
On the pious day of Birth Anniversary of Sardar Vallabh Bhai Patel also celebrated as National Unity Day NSS Unit of Deshbandhu College in collaboration with Ek Bharat Shreshtha Bharat Unit organised Pledge Taking Ceremony, Poetry Competition on the theme "Ek Bharat Shreshtha Bharat ". Volunteers were also encouraged to organise Bicycle Rally with their friends to spread the message of Unity & integrity in their locality. The idea was to motivate students to imbibe the ideas and beliefs of the great freedom fighter.



**8<sup>th</sup> November, 2021**  
**Lecture cum virtual lab visit on Landfill: A Public & Environmental Health perspective**

Department of Zoology, Deshbandhu college organised a Lecture cum virtual lab visit on “Landfill: A Public & Environmental Health perspective” on November 8<sup>th</sup>,2021.

Some Highlights of the Event were Anaerobic microbiology lab , Anaerobic chamber, Anaerobic gas station, Anoxomat , MIDI, MALDI-TOF/MS , Next generation sequencing platforms including Sanger sequencing, Ultra centrifuge,, Molecular biology lab Gel Doc, PCR –Machine, BIOLOG , VITEK, Lyophilizes



**14th November Children’s Day**

On the blissful occasion of Children’s Day i.e. Birth Anniversary of Pt. Jawaharlal Lal Nehru NSS Unit of Deshbandhu College organised Donation Drive at VP Singh Camp, Kalkaji Volunteers of the unit distributed Biscuits & Cold Drink to the young kids. The smile on the face of Kid’s gave inner satisfaction to the volunteers and instil in them the values of Empathy and Cooperation.



## 14th - 20th November Cleanliness drive

NSS Unit in collaboration with South Delhi Municipal Corporation under the tutelage of Swachh Bharat Abhiyan organised a week long Cleanliness Drive. As part of the initiative active and spirited volunteers cleaned areas of college premises adhering to the Covid Protocols



## 19<sup>th</sup> November, 2021 Seminar on Nadi ko jano

The RFRF launched a nationwide campaign called "Nadi Ko Jano" to crowdsource real-time river data. The initiative focuses on river mapping, which can be beneficial to national policymakers.

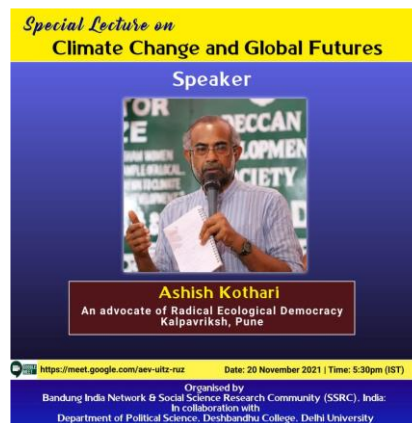
NSS Unit of Deshbandhu College made an appeal to the entire college to participate in the event by registering themselves for the same.



**20<sup>th</sup> November, 2021**  
**Seminar on climate change and future of the world**

The department of Political Science , Deshbandhu college in collaboration with Bandung network and Social Science Research Community (India) organised a seminar on climate change and future of the world on 20<sup>th</sup> November, 2021.

Keynote speaker was Mr. Ashish kothari, Advocate of Radical ecological democracy Kalpavriksh, Pune.



**22<sup>nd</sup> -24<sup>th</sup> DECEMBER, 2021**  
**SKILL ENHANCEMENT WORKSHOP ON BASIC LABORATORY PROCEDURES AND LAB ETHICS**

Department of Biochemistry, Botany and Zoology, Deshbandhu College, University of Delhi under the aegis of DBT Star College Scheme organized skill enhancement workshop for the laboratory staff of colleges for three days from 22-24<sup>th</sup> December on basic laboratory procedures and Lab ethics.



## 28<sup>th</sup> NOVEMBER, 2021 CLEANLINESS DRIVE

NSS Unit of Deshbandhu College in collaboration with Unnat Bharat Abhiyan Cell organised a Cleanliness Drive in the lanes of Bhati Village, where enthusiastic Volunteers participated and made it a huge success. They also interacted with villagers and aware them about need of proper Hygiene & sanitation and how waste pollutes the environment.



## 27th November- NSS Orientation

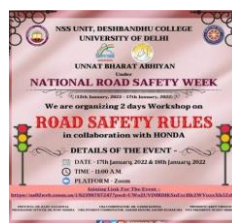
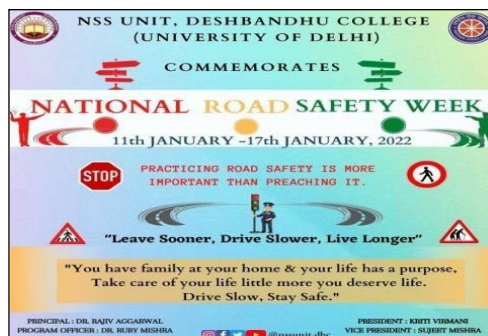
NSS Unit of Deshbandhu College organised an Orientation Program for Fresher's in which they were briefed about the working of society and its objectives. Core members shared their past experiences being in NSS and Teacher Coordinator's also shared their words of wisdom. The new students seemed excited.



**11<sup>th</sup> to 17<sup>th</sup> JANUARY, 2022  
ROAD SAFETY WEEK**

Nss Unit of Deshbandhu College observed The national Road safety week commemorated by Government of India to mark the seriousness of this social problem and to make people more and more aware of Road Safety. Every year from 11<sup>th</sup> January to 17<sup>th</sup> January, the Ministry of Road & Transport in collaboration with various State Governments commemorates National Road Safety Week by organising webinars, quizzes & social awareness campaign. The Theme for this year was "Sadak Suraksha Jeevan Raksha".

NSS Unit initiated various activities to commemorate the 30<sup>th</sup> National Road Safety Week & to spread the governments message of public safety on roads. A workshop was also organized



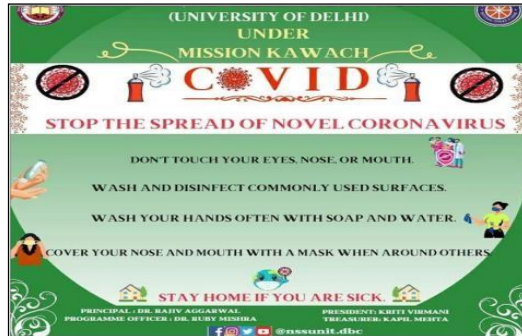
**22<sup>nd</sup> -24<sup>th</sup> DECEMBER,2021  
SKILL UP WORKSHOP**

Department of Chemistry, Deshbandhu College, University of Delhi under the aegis of DBT Star College Scheme organized a three days intercollege workshop entitled "Skill Up" for laboratory safety and management from 22-24 December 2021.

This workshop was especially designed for laboratory staff, to give an insight about the solutions preparation, chemicals, their handling, safe disposal, maintenance of equipment, hazards, safety and management of Chemistry laboratory on routine basis.

**19<sup>th</sup> JANUARY, 2022**  
**PREVENTION & CURE OF OMICRON**  
**UNDER MISSION KAWACH**

Under Mission Kawach NSS Unit of Deshbandhu College released posters on its Social Media Handles which were aimed at awaring masses about the new variant of Corona i.e. Omicron. The posters highlighted the prevention, symptoms & nutritional diet's citizens need to take and follow while pandemic is going on.



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End of the Report.....