



LADY IRWIN COLLEGE

ENVIRONMENT AUDIT REPORT

2021-2022

PREPARED BY
EHS ALLIANCE SERVICES



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AUDIT CERTIFICATE



AUDIT CERTIFICATE

PRESENTED TO

LADY IRWIN COLLEGE

Sikandra Road, Mandi House, New Delhi, 110001

Has been assessed by EHS Alliance Services for the comprehensive study of environmental impacts on institutional working framework to fulfill the requirement of

ENVIRONMENT AUDIT

The environment legal compliances and initiatives carried out by the College have been verified on the report submitted and was found to be satisfactory.

The efforts taken by management and faculty towards environment and sustainability are highly appreciated and noteworthy.

AUDITOR SIGNATURE



25.11.2022

DATE OF AUDIT

EHS ALLIANCE SERVICES, PLOT A-72, SURYA VIHAR, GURUGRAM, 122001
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ACKNOWLEDGEMENT

EHS Alliance Services would like to thank the management of Lady Irwin College, New Delhi, for assigning this important work of Environment Audit. We appreciate the co-operation of the teams in the completion of the assessment.

We would like to especially thank **Prof. Anupa Siddhu – Director, Lady Irwin College** for giving us an opportunity to evaluate the environmental performance of the campus.

We would also like to thank **Audit Conveners - Prof. Puja Gupta (Convener, NAAC Cr. VII), Prof. Meenakshi Mital (Convener, NAAC Cr. VII), and Dr. Meenal Jain (Member, NAAC Cr. VII)**, for steering the audit process, without which the completion of the project would not have been possible. We are also thankful to other staff members for their constant support in completing the compilation of data in a timely manner.

We are also thankful to

Prof. Sushma Goel	<i>Vice Principal</i>
Prof. Rupa Upadhyay	<i>Convener, Garden Committee</i>
Ms. Vishakha Sambhav	<i>Member, NAAC Cr. VII</i>
Ms. Shefali Chopra	<i>Member, NAAC Cr. VII</i>
Ms. Mitali Yadav	<i>Member, NAAC Cr. VII</i>
Mr. Rajneesh Dwevedi	<i>Member, Eco-club</i>
Ms. Seema Das	<i>S/O, Accounts Department</i>
Mr. Amit	<i>Administrative Department</i>



DISCLAIMER

EHS Alliance Services Audit Team has prepared this report Lady Irwin College based on input data submitted by the representatives of College complemented with the best judgment capacity of the expert team.

While all sensible care has been taken in its preparation, details contained in this report have been compiled in good faith based on the information gathered.

It is further informed that the conclusions have arrived following best estimates and no representation, warranty or undertaking, express or implied is made and no responsibility is accepted by 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.

If you wish to distribute copies of this report external to your organisation, then all pages must be included.

EHS Alliance, its staff and agents shall keep confidential all information relating to your organisation and shall not disclose any such information to any third party, except that in the public domain or required by law or relevant accreditation bodies.

EHS Alliance staff, agents and accreditation bodies have signed individual confidentiality undertakings and will only receive confidential information on a 'need to know' basis.

A handwritten signature in blue ink, appearing to read 'H. Day'.

Signature

LEAD AUDITOR



|| CONCEPT AND CONTEXT

In India, the process for environmental audit was first mentioned under the Environment Protection Act, 1986 by the Ministry of Environment of forests on 13th March, 1992. As per this act, every person owning an industry or performing an operation or process needs legal consent and must submit an environmental report or statement.

The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory from the academic year 2019–20 onwards that all Higher Educational Institutions should submit an annual Green, Environment and Energy Audit Report. Moreover, it is part of the Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards a sustainable environment.

In view of the NAAC circular regarding environment auditing, the College management decided to conduct an external environment assessment study by a competent external professional auditor.

The term 'Environmental audit' means differently to different people. Terms like 'assessment', 'survey' and 'review' are also used to describe similar activities. Furthermore, some organizations believe that an 'environmental audit' addresses only environmental matters, whereas others use the term to mean an audit of health, safety and environment-related matters. Although there is no universal definition of Environment Audit, many leading companies/institutions follow the basic philosophy and approach summarized by the broad definition adopted by the International Chambers of Commerce (ICC) in its publication of Environmental Auditing (1989).

The ICC defines Environmental Auditing as:

“A management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing intending to safeguard the environment and natural resources in its operations/projects.”

This audit focuses on the environment legal compliances and implementation of rules defined by MoEFCC or the state pollution control board. The concepts, structure, objectives, methodology, tools of analysis and objectives of the audit are discussed below.



INTRODUCTION

Nature is a very precious gift for all life forms. Disturbance in nature causes environmental Problems. These are increasing day by day as a result of the development of urbanization and industrialization on earth. Because of the unplanned utilization of resources, our planet is facing tremendous pressure results a sharp rise in temperature. Therefore, there is an urgent need to plan the consumption of the resources in a sustainable manner to conserve natural resources for future generations.

Sustainable development is becoming popular in the world for saving the earth. Utilizing resources judiciously can save the earth's precious resources. Measurement of environmental components is the most effective step to conserving and protecting natural resources.

Environmental auditing had begun in the early 1970s with the provision of civil lawsuits for non-compliance with environmental regulations. Environment auditing involves on-site visits, collection of samples, performing analyses, and reporting results to competent authorities.

Industry, the corporate world is initiating auditing for saving natural resources. Academic institutions also can contribute to the preservation and conservation of resources within their premises.

In this "Environment Audit" report would help everyone to think about preserving resources, show a willingness to learn their importance, adopt steps to minimize resource use and set an example for others to follow the path of eco-friendly practices to achieve the goal of sustainable development. Effective implementation of environmental auditing helps in minimization of environmental risks at a low cost.

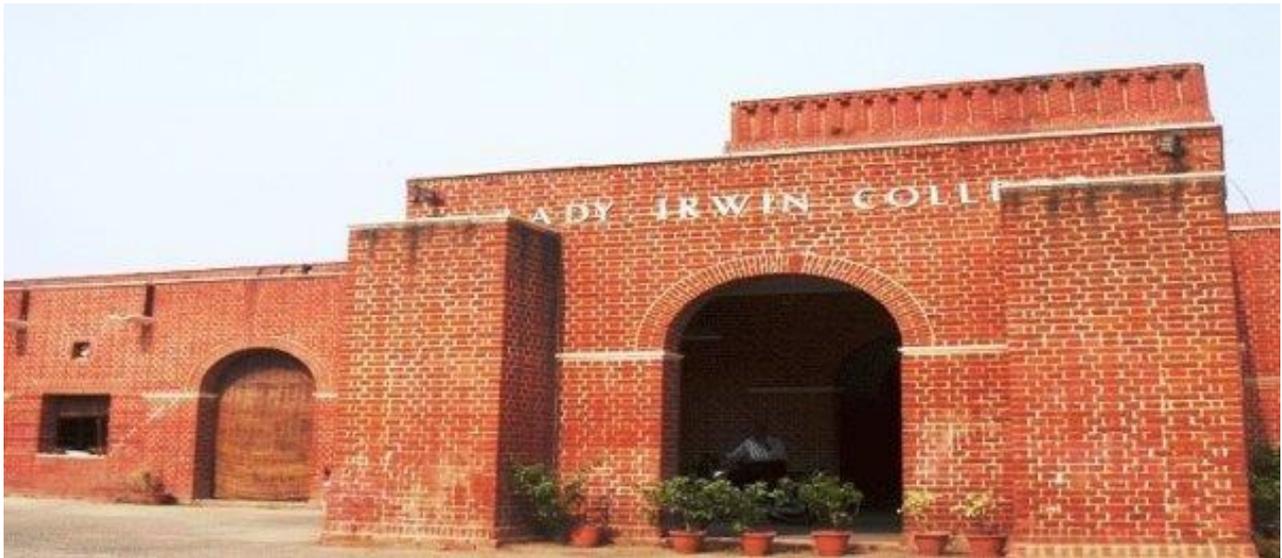
OVERVIEW OF COLLEGE

Lady Irwin College is a constituent college for women, in the University of Delhi, under the memorandum of Association of The Lady Irwin College Society vide Regd. Society Registration Act 1860 (Punjab Amdmt.) 1957 Registration No.4163 (1969-70) & maintained by the Governing Body & UGC Grants. Lady Irwin College is a premiere institution affiliated to University of Delhi for Undergraduate and Postgraduate education in Home Science. It also supports doctoral programs in five areas of Home Science. Other programmes are two year B.Ed. (for students of Home Science), B.Ed. Special Education MR (for students from all streams) and one year Postgraduate Diploma in Dietetics & Public Health Nutrition.

It aims for holistic development of women students, and their capacity building through carefully designed academic programmes and extramural activities.



The Lady Irwin College aphorism is VIDYA HI SEWA. The teaching learning transactions true to the motto Endeavour to inculcate a sense of knowledge to serve through carefully designed outreach experiences.

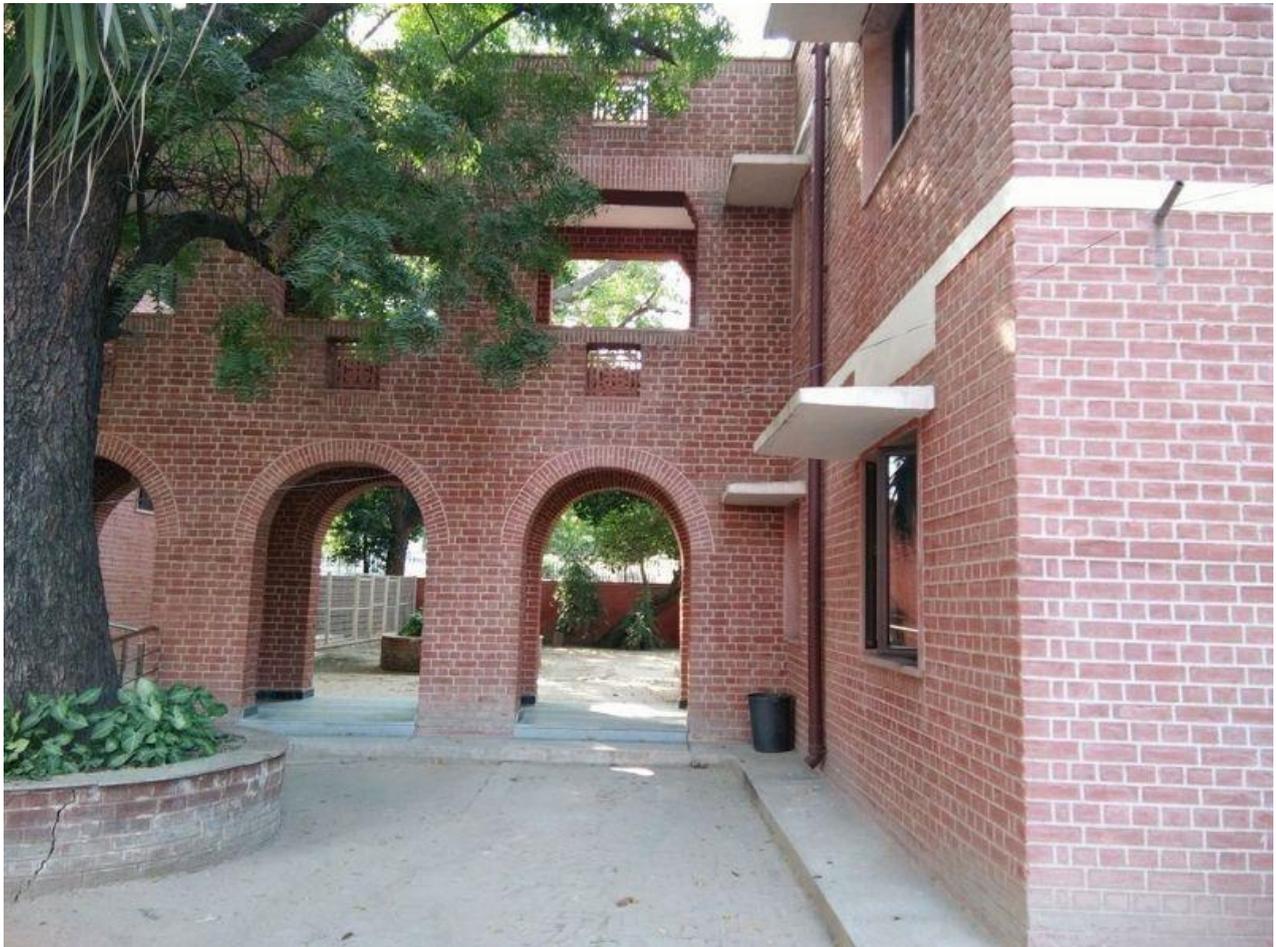


The College has always provided headship to other institutions in the nation in teaching, research and extension in Home Science, both at central universities and Home Science colleges with agricultural institutions.

Lady Irwin College has celebrated 83 years in 2015. The education in this college aims towards capacity building for entrepreneurship, improved quality of life and overall development of the students. It is a nodal and template institution for Home Science education in the country.

The academic disciplines in the college are artistic, creative, culturally rooted and contemporary. The programmes are scientifically planned which include education in textile technology, food processing, metabolism, environment, sustainable technologies, food safety, health and disease and human development. The focus of college is to have holistic education for the all round development of the students.

High standard of education is maintained in pedagogical strategies and course structuring by the faculty members. The curriculum is internationally competitive. The college hopes to improve the talent and nurture creativity among its students for playing positive role in the society.



VISION

Strives to inculcate the spirit of service along with professional development and skills for women empowerment through state of the art education, research and extension by nurturing innovation, leadership and national development.

Lady Irwin College has been a pioneer in women’s education. Set up more than eight decades ago, the vision for empowering women continues to be the key thrust of the College. It is indeed a matter of pride for us that the Father of the Nation Mahatma Gandhi gave us our motto Vidhya Hi Sewa (service through knowledge). True to the motto, our educational endeavour has been to inculcate the spirit of service along with professional growth of students. The college remains committed to building leadership, conscious citizenry and active participation of women for furthering national developmental goals. The college encourages the development of scientific temper with special focus on individual, family and community life. The education in the college aims towards developing creative and critical thinking, nurturing innovation and excellence. Lady Irwin sees its students building capacity to acquire global skills for entrepreneurship, professional proficiency and improved quality of life.



Eminent national and international leaders helped envision Lady Irwin College goals and the role it could play in the field of higher education for women. They built strong foundations based on core values of social justice, veracity, service and sustainability for achieving excellence in all spheres of life. These have continued to guide and contour the curricular and co-curricular thrusts of the college through the decades.

Since its inception, Lady Irwin College, has been a flag-bearing institute for Home Science education in the country, both at the school and college level and has always provided leadership to other institutions across the country. The knowledge, innovations, tenets and thrusts provided by the college over the years have percolated to put Home Science as a discipline on the academic map of India.

MISSION

The college faculty has consistently strived to contemporize its academic content through innovative research, strong community outreach and implementation of new technological knowledge in the field of Home Science. Every department of the college, along with developing core discipline specific skills among the students, also addresses larger societal issues like health, gender, conservation of textile heritage, socio-economic inequalities, community mobilization, people's participation, resource utilization, environment and education.

The curriculum helps young women students develop key life skills for their future professional and societal roles. Their experiences at college are designed to facilitate self-development and nurture them so that they become aware, active and enthusiastic members of the community and the nation at large. In a nutshell, through curricular and co-curricular activities at both UG and PG levels, we strive to:

- Accomplish training and development of young women for professional employment
- Generate an appreciation and respect for our cultural heritage and traditions with a critical orientation towards social and economic advancement
- Undertake training of trainers and educators
- Develop research and critical analysis skills for analyzing and suggesting national development strategies
- Strengthen linkages with other teaching and research institutions and professionals at all levels
- Give impetus to community outreach and extension

The courses at Lady Irwin strive to build a cadre of professionals:

- Focusing specifically on issues, programmes and policies of health and well-being of children, women and families
- Nutrition, dietetics, food processing, food safety and security



Lady Irwin College: Environment Audit Report

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- Heritage textiles, textile technology and apparel design
- Early childhood care and education, parenting, family counselling
- Education of children in formal and non-formal settings, including persons with disabilities
- Sustainable management of resources and new product development
- Communication for development, participatory communications and innovative media development

Lady Irwin College offers following programs

Postgraduate Programmes

- B.Ed. – Two Year degree course
- B.Ed. Special Education (MR) – Two Year degree course
- Postgraduate Diploma in Dietetics and Public Health Nutrition – PGDDPHN (1 Year)
- M.Sc. – Four semester degree course in the following specializations
 - Food and Nutrition
 - Human Development and Childhood Studies
 - Fabric and Apparel Science
 - Development Communication and Extension
 - Resource Management and Design Application

Undergraduate Programmes

- B.Sc. Home Science (3 Years)
- B.Sc. (Hons) Home Science (3 Years)
- B.Sc. (Hons) Food Technology (3 Years)
- NEP Cluster SEC,VAC and AEC Sem I(Nov.2022-Feb. 2023)

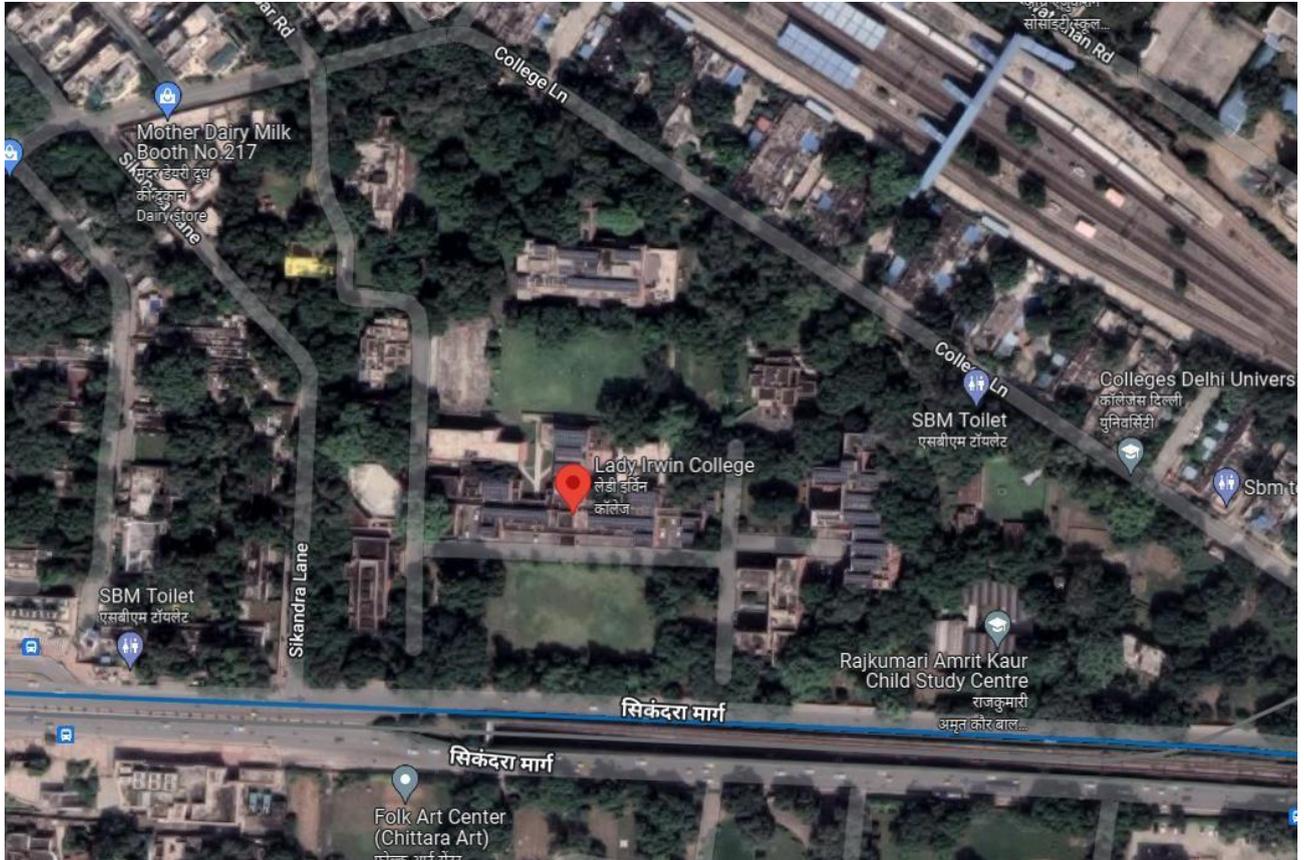
Ph. D. All 5 specializations

Short-term Certificate Courses

- Rhinoceros Course
- Retail Management Course
- CSR course
- Auto CAD Course



Map location of campus





AUDIT PARTICIPANTS

On behalf of Lady Irwin College

Name	Designation/Department
Prof. Anupa Siddhu	Director, Lady Irwin College
Prof. Sushma Goel	Vice Principal
Prof. Puja Gupta	Convener, Environment Audit & NAAC CR-VII
Prof. Meenakshi Mital	Convener, Environment Audit & NAAC CR-VII
Dr. Meenal Jain	Convener, Environment Audit & Member, NAAC CR-VII
Ms. Vishakha Sambhav	Member, NAAC CR-VII
Ms. Shefali Chopra	Member, NAAC CR-VII
Ms. Mitali Yadav	Member, NAAC CR-VII
Ms. Geetika Mishra	Ph.D. Scholar

On behalf of EHS Alliance Services

Name	Position	Qualifications
Dr. Uday Pratap	Lead-Auditor	Ph.D. , PDIS, QCI – WASH, Lead Auditor ISO 14001:2015
Mr. Shamsher Kharab	Co-Auditor	M.Sc., M.Tech in Environment Sciences, Field Expert, Post Diploma in Industrial Safety Management



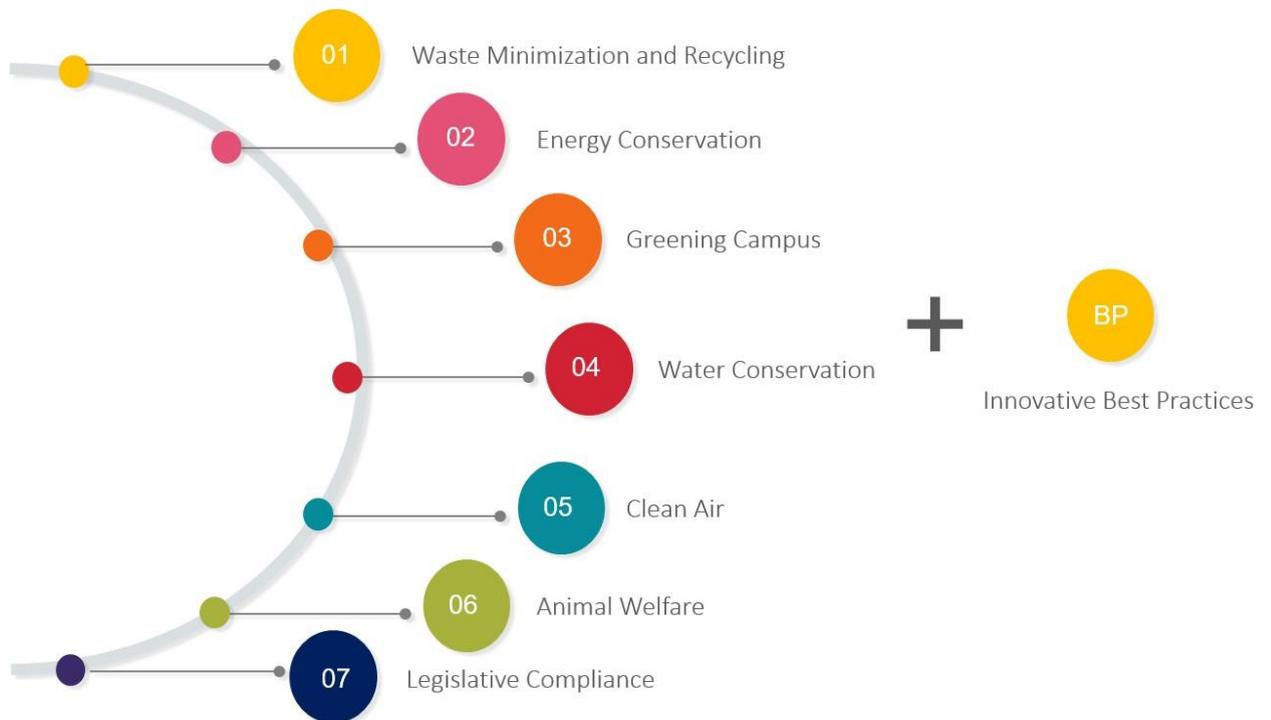


EXECUTIVE SUMMARY

The environment audit is a snapshot in time, in which one assesses campus performance in complying with applicable environmental laws and regulations. Though a helpful benchmark, the audit almost immediately becomes out-dated unless there is some mechanism in place to continue the effort of monitoring environmental compliance. Our approach to promote a Green Campus to inculcate the sustainable value systems among the students, so that they carry the learning and practices them in their future endeavors. This will ensure that Sustainability and Environmental practices get embedded in all the institutions and organizations in the country.

A Green Campus is a place where environmentally friendly practices and education combine to promote sustainability in the campus which ultimately offers an institution the opportunity to take the lead in redefining its environmental culture and developing new paradigms by creating sustainable solutions to environmental, social and economic needs of the mankind.

This is first environment audit of College for doing their bit towards environmental protection and environmental awareness at local and global front. Audit criterion is environmental cognizance, waste minimization and management, biodiversity conservation, water conservation, energy conservation and environmental legislative compliance by the campus. A questionnaire is used during audit, along with interviews, discussion and field surveys. This audit report contains observations and recommendations for improvement of environmental consciousness.





WASTE MANAGEMENT

TYPES OF WASTE IN CAMPUS

To create effective waste management plans, the college first needs to know the types of waste they produce. Below, we have compiled a list of various kinds of waste commonly generated on institutional campus:

1. **Food Waste** - College campus generates food waste. The average mess and canteen including all campuses generate approximately 20 kg of food waste a day. Immediate attention is given to food waste minimization techniques.
2. **Recyclable Paper, Cardboard, Plastic, Glass and Cans** - Campus tends to produce vast quantities of these recyclables. Even in the digital age, many students, professors and staff members still prefer handwritten notes and end up with piles of unwanted paper once their courses and projects are complete. The snacks so essential to late-night studying or socializing tend to come in recyclable plastic, glass or aluminium containers. And shipments of necessary items throughout the year are likely to arrive in recyclable plastic and cardboard packaging. The same is sold/auctioned to the scrap vendors from time to time.
3. **Student Clothes and Housewares** - As we have mentioned above, many students find it more convenient to throw away their clothes and dorm furnishings at the end of the year than donate or recycle them. The Institutions should organise a donation camp for donating clothes and books to help needy people.
4. **E-Waste - Student and facility electronics often form a large portion of a campus's waste** — As campus continually upgrade their computing facilities and office computers to keep up with the latest technology, the old computers have to go somewhere, and so do the old printers, phones, copy machines and other electronics that receive upgrades over the years. Discarded student electronics often become part of a college's waste stream as well. Students may throw away old phones, TVs, tablets, laptops and printers, along with cords and other accessories. Recycling is a much more eco-friendly option — the metals in old electronics often have a high reuse value. The College has tie-up with external authorised agency details mentioned in legislation compliances.
5. **Maintenance Waste** - In the maintenance department, spent paints, solvents, adhesives and lubricants all form potentially hazardous waste. Because they are difficult to recycle, spent incandescent light bulbs usually become landfill waste. Spent fluorescent light bulbs, which contain small amounts of mercury, typically require special handling because of the environmental and health risks they pose.



6. **Furniture** - Furniture waste on college campus has a couple different sources. The campus itself may also get rid of old furniture as it modernizes its classrooms, cafeterias, computer labs and study spaces. Annually sold to junk dealer.
7. **Books/Magazines/Newspapers** - Books accounted for solid waste generation and college often generate tons of textbook waste. As courses upgrade to new editions, they may end up throwing their newly obsolete textbooks into the garbage if donation programs cannot use them. Students should donate their text books and notes to junior students, or else can be auctioned to reseller.
8. **C & D Waste** - Due to expansion of college campus building and renovation works result significant amount of construction and demolition waste that should be either used for back filling or disposed off through authorised dumping site by CPCB/SPCB.
9. **Solid Waste** - The College can manage its solid waste by providing it to the MCD or with a third party authorised vendor.
10. **Horticulture Waste** – College campus has lavish greenery and grounds in most that results significant horticulture waste which is managed by in-house composting system.



Waste Management



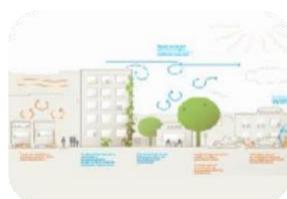
Greening Campus



Energy Conservation



Water & Wastewater Management



Air Quality Management



Biodiversity Conservation



Legislative Compliance



ENERGY CONSERVATION

1. List ten ways that you use energy in your institute. (Electricity, LPG, firewood, others). Using this list, try to think of ways that you could use less energy every day.

- Lady Irwin College uses electricity for Lights, fans, computers, smart boards, AC, etc.
- Electricity is mainly used in the classrooms, offices, staff room, library, seminar room, hostel, canteen, etc.
- LPG is used for cooking purpose in canteen and hostel mess.
- Lady Irwin College practice the “switch-off” drill in the campus and in the hostels.
- Solar PV is installed in Lady Irwin College
- Lady Irwin College use solar water heater in kitchens and hostel

2. Are there any energy-saving methods employed in your institute? If yes, please specify. If no, suggest some

Yes, Lady Irwin College has adopted energy-saving techniques

- Renewable source of energy through solar panel is operational in Irwin College
- Solar heaters are installed for the hostel and mess in Lady Irwin College
- LED lights have been installed in the campus
- Switch off fans and lights when not in use
- Switch off bulbs/LEDs in the well-lighted rooms during sunny afternoons.
- Various energy conservation awareness programs for students and staff
- Keep the computers and ACs in power-saving mode.
- Most of the classrooms have high ceilings and natural lighting.

3. How many CFL/LED bulbs have your institute installed?

The college adopts a policy to replace old lighting fixtures with LED bulbs.

4. Do you run “switch off” drills at the institute?

Yes

5. Are your computers and other equipment put in power-saving mode?



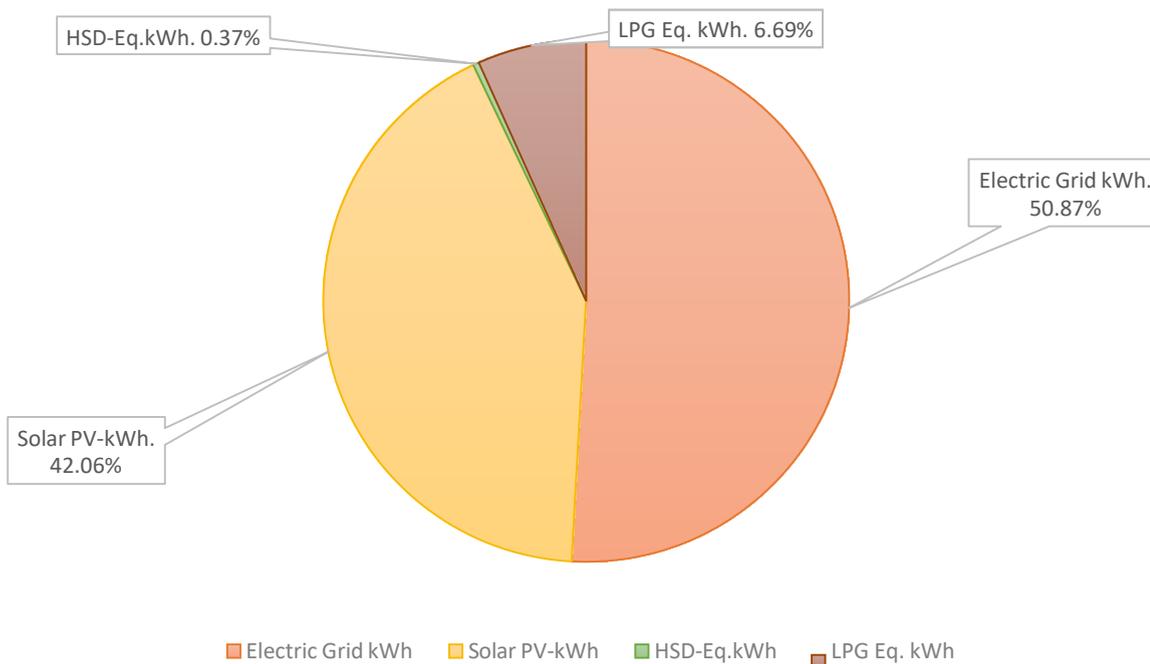
Yes, Lady Irwin College put the equipment on power-saving mode

6. Does your machinery (TV, AC, Computer, weighing balance, printers, etc.) run on standby modes most of the time? If yes, how many hours?

Yes, approx. 6 hours

Energy Share	kWh	Percentage
Electric Grid kWh	362842.80	50.87%
Solar PV-kWh	300000.00	42.06%
HSD-Eq.kWh	2630.40	0.37%
LPG Eq. kWh	47743.20	6.69%
Total -kWh	713216.40	100%

Energy Share in KWH





WATER AND WASTE- WATER MANAGEMENT

1. List uses of water in your institute

Campus wise water usage details in KL/mo

Drinking – 47.31 KL/month

Gardening – 1959.53 Kl/month

Kitchen and Toilets – 310.68 KL/month

Others – 113.02 KL/month

Hostel – 429.20 KL/Month

Total = 2859.73 KL/Month

2 How does your institute store water? Are there any water saving techniques followed in your institute?

Lady Irwin College relies on DJB for water as a primary source and has bore well as a secondary source. Total water storage is 110600 liters within the College campus.

Location Name	water Tank Size (Liters)	Count of Tanks	Total Storage
Library	500	4	2000
Library	1000	1	1000
House Block	1000	3	3000
House Block	12000	1	12000
F/T Block	1000	1	1000
F/T Block	2000	1	2000
F/T Block	12000	1	12000
Admin Block	300	1	300
Admin Block	500	1	500
Admin Block	1000	10	10000
Textile Block (Old B.Ed.)	300	1	300
Textile Block (Old B.Ed.)	500	1	500
Textile Block (Old B.Ed.)	1000	5	5000
Textile Block (Old B.Ed.)	2000	1	2000
PG Block	500	2	1000
PG Block	1000	1	1000



PG Block	2000	3	6000
DHCS Nusrey	300	1	300
DHCS Nusrey	500	3	1500
DHCS Nusrey	10000	1	10000
Staff Office	300	7	2100
Staff Office	1000	1	1000
Student Center	1000	1	1000
Student Center	2000	1	2000
Director residence	500	1	500
Director residence	1000	3	3000
Staff Office	500	20	10000
Staff Office	15000	1	15000
Others	1000	4	4000
Main gate	300	2	600
Grand Total			110600

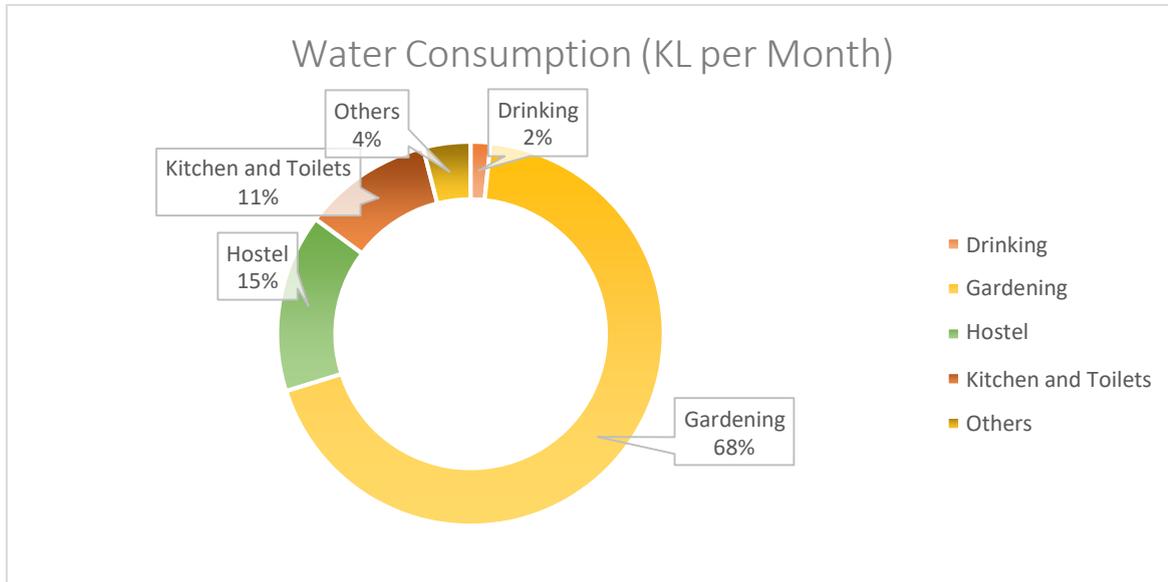
Saving Techniques

- Avoid overflow of water controlled valves are provided in water supply system.
- Close supervision for water supply system.
- Water Conservation awareness for new students
- Sprinklers usage for gardening and grass cover
- Lady Irwin College ensures that the faucets in the washrooms and water filtration units are checked regularly and do not have any leakages.
- Lady Irwin College has also initiated the installation of auto push taps to reduce water wastage.

3. Locate the point of entry of water and point of exit of wastewater in your institute. (Entry and Exit)

Entry – Lady Irwin College uses DJB water and have bore wells as a secondary source of water

Exit – From Canteen, Toilets, bathrooms, laboratories and Hostels through covered drainage which is connected to sewage



4. Write down ways that could reduce the amount of water used in your institute

Basic ways:

- Close the taps after usage
- Maintenance and monitoring of valves in supply system to avoid overflow, leakage and spillage
- The Lady Irwin College ensures that the faucets in the washrooms and water filtration units are checked regularly and do not have any leakages.
- The Lady Irwin College has initiated the installation of auto push taps to reduce water wastage.

5. Does your institute harvest rainwater?

- Yes, there are 4 large rainwater storage tanks, where rainwater is stored and used for gardening purpose. Large green area of the college campus allows for percolation of water into the soil thereby facilitating recharging of underground water reserves. College only uses non-potable water provided by PWD for maintaining gardens and farms. Rain water harvesting is being practiced in the new building. Water table level is high and buildings need to be protected against rising. Most places and buildings of the college are protected from excessive water by plinth protection. White Eucalyptus trees are a part of the college campus to ensure that the water table is low and the buildings do not have rising.

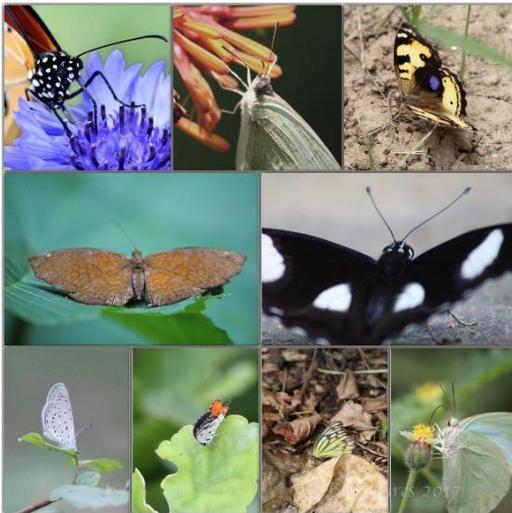
6. Is there any water recycling System?

No, there are no STP and ETP, on the campuses in Lady Irwin College



BIO DIVERSITY

Promoting biodiversity at the college campus provides students with educational, hands-on opportunities to make positive environmental impacts. Hanging birdhouses, planting wildflower gardens, and expanding recycling programs run by Lady Irwin College management and students inside the premises as well as in adopted local villages. Birds and Squirrels are commonly found on campus. A variety of bird species and other flora and fauna are available but these are not harmful to humans so institute doing their bit for its conservation. Dogs and cats are not found on campus, only pets are allowed, and other stray animals are not inside the camps due to the hard fencing of the premises. Yes, the Environment committee actively organized awareness through nukkar natak, poster competition.



Red-naped Ibis
or
Indian Black Ibis

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www.pantip.com
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Ramesh Divedi



AIR QUALITY MANAGEMENT

1. Are the Rooms in Campus Well Ventilated?

Yes, as per National Building Code, guidelines

2. Window Floor ratio of the Rooms?

Very Good, ample daylight utilization because of big windows.

3. What is the ownership of the vehicles used by your campus?

College owns a bus

4. Provide details of Institute-owned vehicles?

5. Is the PUC of the campus vehicles done?

6. Specify the type of fuel used by your campus's vehicles

7. Air Quality Monitoring Program (If, Any)

No

Air Pollution Mitigation

All the campuses of Lady Irwin College encourage the students to use public transport. There is no vehicle movement allowed within the campus, except for goods and service movement periodically. The parking of staff vehicles is allowed at a designated space within the campus. Hence, air pollution due to vehicular movement is negligible. Paved roads and vegetation help in reducing dust pollution to a large extent. Burning of waste within the campus is strictly banned.



ENVIRONMENT LEGISLATIVE COMPLIANCE

1. Are you aware of any environmental Laws About different aspects of environmental management?

Yes, To promote environment management on the campus, the college follows certain laws related to RRR such as e-waste Management and Handling Rules 2011, Plastic Waste Management Rules, 2016, Solid Waste Management Rules 2016, and more

2. Does your institute have any rules to protect the environment? List possible Rules you could include.

Yes, the environment committee of Lady Irwin College is conscious of environment protection and takes proper measures in terms of awareness campaigns, activities, webinars, seminars, etc.

3. Does Environmental Ambient Air Quality Monitoring conducted by the Institute?

No

4. Does Environmental Water and Wastewater Quality monitoring conducted by the Institute?

Yes, managed by CPWD

5. Does stack monitoring of DG sets conducted by the Institute?

No

6. Is any warning notice, letter issued by state government bodies?

No

7. Does any Hazardous waste generated by the Institute?

Yes, but proper management is in place



GENERAL INFORMATION

1. Does your institute have any rules to protect the environment? List possible rules you could include.

Yes, Lady Irwin College committee carries out a number of workshops, campaigns, and awareness programmes for environment protection in campus.

2. Are students and faculties aware of environmental cleanliness ways? If Yes Explain

Lady Irwin College actively participates in various awareness and cleanliness drives

3. Does Important Days Like World Environment Day, Earth Day, and Ozone Day etc. eminent in Campus?

Yes, World Environment Day, Ozone Day, Earth Day, Earth Hour and more are celebrated on campus. Furthermore, Lady Irwin College organises different activities such as a workshop and webinar on Environmental Conservation and, Various plantation drives of native plants, etc.

4. Does Institute participate in the National and Local Environmental Protection Movement?

Yes, Lady Irwin College is actively participating in environment protection movements like Swatch Bharat Abhiyan by students at the campus

5. Does Institute have any Recognition or certification for environment friendliness?

No

6. Does Institution conduct an environmental audit of its campus?

This is the very first external audit carried out by the college.

7. Has the institution been audited /accredited by any other agency such as NABL, NABET, TQPM, NAAC etc.?

Yes



INSTITUTION'S BEST PRACTICES

- Environment Committee Initiatives – Lady Irwin College has NAAC Cr-VII committee which also acts as the Environment Committee of the College. Eco-club of the college also supports the initiatives taken by the Environment Committee.
- College is collecting rain water in tanks, which is further used for gardening purpose.
- College is making planters from used plastic containers and bottles, and thus promoting recycling.
- Awareness of students and staff regarding garden waste management in the college.
- Students are made aware and trained to identify the common animal and plants of the college campus.
- A nutritional and a herbal garden have been developed in the college.
- Organic farming is practiced in the college to sensitize students and other staff.
- Various other activities such as poster making competitions, seminars and webinars, participation in govt. missions such as UBM and WWF is being carried out by the college.

1. Solid and Liquid Waste Management in Campus

- College has a well-defined environment policy.
- Waste is an obvious culprit and pollutant, contributing to landfills and toxins which harm the earth's soil and atmosphere. Keeping this in mind, the waste material in college is segregated into biodegradable and non-biodegradable wastes, and as toxic and non-toxic wastes in the laboratories.
- Organic waste from garden and hostel kitchen is being composted in **Aerobins**, in collaboration with **Indian Pollution Control Association (IPCA)**. An agreement has been signed under the S.O.R.T project.
- College has tied up with “**Jaagruti – Waste Paper Recycling Services**” for managing its paper waste. All the used paper of college is sent to them which is recycled into useful products like notepads for use by college staff and students.
- Single use plastic is discouraged throughout the campus. Research is done to use the plastic for preparation of textiles.
- Indiscriminate use of chemicals is discouraged during practical classes and college does not have permission to use radioactive substances in its laboratories.
- College adopts the policy of Reduce, Recycle and Reuse (3Rs).



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- College produces its own manure by **vermicomposting**. Also, roly polly is part of the campus gardens, helping optimum utilization of food waste and garden waste.
- **Briquette equipment** is being regularly utilized to convert garden waste into compost.
- **Leaf composting** is done in-house which is also put on sale in months of excessive leaf fall in order to clean the pits.
- Department of Education develops teaching-learning materials such as science kits and educational games for children with special needs from waste materials.
- Department of Resource Management and Design Application develops useful new products from waste materials, including garden waste.
- College maintains all its computer peripherals and takes pride that it has been actively involved in recycling all the computers and its components in the last 25 years. This also ensures that computer accessories are being maintained at minimal cost. College has awarded the tender to government approved vendor for managing e-waste as per safety norms. Computer Resource Centre ensures buy back of lithium batteries and ink cartridges, while making new purchases.

2. Hostel Kitchen Facilities

Solar water heaters are used to generate hot water for cooking and cleaning purpose. Modern heavy-duty chimneys are installed for proper exhaust of the smoke and vapor generated.

3. Campus Area under Greenery

- Area under green cover is 468714.48 sq ft
- Availability of nursery in campus along with compost pits
- About 800-1000 plantations done in one year
- Campus beautifully landscaped with evergreen trees and seasonal plants

Situated at the hub of the city, being a heritage structure, the college finds immense pride in the fact that it has been able to maintain the pristine state of nature in its campus. The natural landscape predominates the campus with a rich biodiversity of flora and fauna which is taken care of by a dedicated team of workers. A continuous monitoring of the biodiversity is carried out by students and teaching & non-teaching staff.

There are large numbers of trees and lawns adding to improved quality of indoor air and lesser air pollution. Impetus is given for plants like *Mangifera indica* (Mango), *Syzygium cumini* (Jamun), *Citrus limon* (Lemon), *Delonix regia* (Gulmohar), *Magnolia champaca* (Champa), *Azadirachta indica* (Neem), *Saraca asoca* (Ashoka), *Adansonia digitata* (Baobab), Cheeku and many other fruit trees are also there in kitchen gardens of various cottages like lime, custard apple, banana, papaya and mulberry to name a few. The college also maintains herbal garden having plants like aloe vera, curry leaves, pudina, coriander, lemon grass, haldi, ashwagandha to name a few.



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Various species of birds and wildlife are also there on campus. The college is haven to several butterflies, peacocks, parrots, kites and hornbills to name a few.

The college has a Gardening committee which comprises of botanists, horticulturists, environmentalists and trained gardeners who are engaged in maintaining the eco-friendly environment. There is a functional and active eco club that organizes various awareness programs and other events at regular intervals. Through eco-club and NCC, college has organized activities such as Swachh Bharat Abhiyan, plantation drives etc. Practice of giving out and planting pots & saplings as souvenirs at various college events is also followed.

4. Land Use Management

The college has a heritage building status by INTAC and Delhi Government. It is well maintained by the Building and Maintenance Committee. Tree plantation drives are conducted regularly to increase the green cover. Effort is maintained to maintain bio-diversity.

Efficient land use is done for pavements, parking lots, gardens, basketball court, playing fields, lawn tennis and buildings for educational, recreation and administrative purposes along with canteen. The college has two buildings earmarked for UG hostel and PG hostel and for Rajkumari Amrit Kaur Child Study Centre. There is housing available for teaching and non-teaching staff occupied by over 250 people.

5. Solar Energy Conservation

- Solar roof top grid connected plant installed in college since Oct 2020, capacity 218 Kwp
- Energy requirement ~25,000-30,000 KW/month, energy generated via solar roof top ~22,000 KW/month
- 70-90% energy needs met by solar roof top
- CFLs and T5 being replaced with LEDs as a phase out mechanism by policy
- Energy efficient equipment being used on campus
- Research being undertaken at masters and Ph.D. level in the area of renewable energy and energy efficiency
- Training and capacity building material (including games, banners, etc.) developed for outreach

Leading the way to a sustainable future, the college is proud to have established a 218 kWp Solar Photovoltaic (SPV) rooftop plant on its premises, taking forward the Government of Delhi's scheme for solarization of government buildings. The plant was inaugurated on 14th October' 2020 by Hon'ble Chief Minister of Delhi. The plant has been put up on three major buildings of college. The solar plant generates about 3 lakh units of power each year and contributes greatly in Delhi's fight against pollution. The college has always been sustainable in its true sense and this project takes that legacy forward. This SPV plant not only cuts down the emissions generated



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through the use of conventional grid-power, but also sets an example for others to go green. Our students who academically learn sustainable development have live examples on campus.

6. Water Management

- Rain water harvesting being done
- Collected water being used for landscape thus reducing consumption of municipal water
- Monthly water bills being monitored for gauging consumption. Zone wise water meters have been installed in the campus.
- Leaky taps being fixed regularly
- Vast unpaved areas in campus aid in water percolating and recharging ground aquifers
- The college has installed rain harvesting pits in the college campus, gallons of water into the soil thereby facilitating recharging of underground water reserves. College only uses non-potable water provided by PWD for maintaining gardens and farms. Water table level is high and buildings need to be protected against rising. Most places and buildings of the college are protected from excessive water by plinth protection. White Eucalyptus trees are a part of the college campus to ensure that the water table is low and the buildings do not have rising. There are two underground tanks to collect the rainwater and two over the ground tanks for collecting rainwater from the spouts. Water sprinklers are used for irrigation as a water conservation practice.

7. Adopted Villages

Last few years during Poshan Mah, nutri kitchen gardens were encouraged which could be taught very easily in our set-up. Student volunteers were sent with several NGOs for plantation of trees by AIWEFA and AIWC during the World Environment Day this year in June. Tughlaqabad villages have been adopted for Swachha Bharat activities.

The College works with several grassroots communities through NGOs in Delhi and neighbouring areas. The college's mission has firmly stood the test of time and the college worked towards empowering the women force in particular for national development at large. The college education aims towards capacity building for entrepreneurship, improved health and quality of life and communication for desirable behavior change. The disciplines are artistic, creative, culturally rooted and contemporary. The college faculty and students have responsibly engaged with people and communities, fulfilling its role in making knowledge and information accessible to people. These experiences enrich education, research and curriculum development and expand the quality of academic work across specializations. The students receive the benefits of knowledge from advanced research activities even in the undergraduate classes.

8. Key Interventions/ Achievements in Adopted Villages

Rural Youth Volunteers in India was a paired/ twinning program between Lady Irwin College (LIC), University of Delhi and Humboldt State University (HSU), California (USA), which worked in collaboration with two local organizations: Environment and Social Research Organization (ESRO)



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and Grameen evam Pariyavaran Vikas Sansthan (GPVS) in the year 2018. The program was supported by the US Mission to India. Both teams comprised of 8 members, four students from HSU and four students from LIC who worked together for 10 weeks in two rural communities, Daula and Tavelagarhi.

The objective was to encourage a sustainable community in terms of solid waste management by the technique of upcycling waste into something functional and resourceful.

Village Tavelagrahi team:

To create social entrepreneurship opportunities for the community members by creating awareness and encouraging participation around the issues of water conservation, contamination and safe storage in sustainable ways.

The main idea was to attach an air tight lid at the top of the container along with installation of a tap to avoid contamination through external sources like hands and other utensils used to fetch water. This was followed by a feedback exercise that was conducted through a group discussion with the community members who showed great enthusiasm about safe storage. Since the Reverse Osmosis (RO) systems installed at a few households were not possibly affordable for everyone; the community members still desired an affordable water filter for psychological satisfaction. Thus, the team worked upon building a bio-sand filter with the aim of demonstrating its assembling and functionality at an education fair.

Village Daula team:

To encourage a sustainable community in terms of solid waste management by the technique of upcycling waste into something functional and resourceful. Throughout this project, we worked closely with community members and sought their participation in bettering their economic and environmental well-being.

Product:

Low Density Poly Ethylene (LDPE):- Melting of LDPE into 2 molds and blocks and tiles are made out of melting the plastic by both frying and oven method.

Grocery Bag: The product "Grocery Bag" was kept for reinforcing the idea of using the cloth bag instead of plastic bags to reduce the consumption of plastic bags.

Plastic clipboard: Plastic clipboard was a new product that was made by the team and liked by the community.

The College has conducted various activities such as rallies, campaigns against usage of single use plastic, tree plantation, waste collection campaigns, recycling of e-waste, awareness creation on importance of hygiene. In addition, the college has taken initiatives to cover several government schemes such as Swachh Bharat Abhiyaan, etc. in the adopted villages.

9. Key Institutional Achievements/Outcomes



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Solar water heaters are installed for hot water supply to the hostels. Separate bins for bio-degradable and non- biodegradable wastes. E-waste generated is dumped at collection units. The campus is green with evergreen trees and seasonal plants.

SPV installation at Lady Irwin College (218 kWp)

It is an honour for the college to have taken the sustainable agenda of the government forward by generating solar energy and reducing the carbon footprint of the city and nation as a whole. The 218 kWp SPV project was successfully installed in the year 2020. The solar plant is generating about 3 lakh units of power each year, leading to substantial savings for the college by reducing our energy bills. The solar plant has been net-metered by NDMC, thereby ensuring that the power generated by the plant is fed into the grid. The SPV plant was inaugurated by Hon'ble Chief Minister, NCT of Delhi on 14th October'2020. The launch got a lot of media attention and was covered by most newspapers. The college is not only generating green energy but also reducing its dependence on coal-based energy.

Paper recycling

College adopts the policy of Reduce, Recycle and Reuse (3Rs). Towards this, an initiative of paper recycling has been taken. College has tied up with "Jaagruti – Waste Paper Recycling Services" for managing its paper waste. All the used paper of college is sent to them which is recycled into useful products like notepads for use by college staff and students, which makes Lady Irwin College a Zero paper waste institute.

RECOMMENDATIONS AND SUGGESTIONS

- Provide sanitary waste disposal facility as per the CPCB guidelines for management of sanitary waste (as per Solid Waste Management Rules, 2016). Installation of Incinerator is recommended in campuses
- Environmental Monitoring i.e. (Ambient Air Quality monitoring, Stack Monitoring of DG sets, Water monitoring need to be conducted by State Pollution Control Committee, approved laboratory) should be conducted periodically.
- Environment friendly criteria should be more elaborative in the environment policy.
- Purchase policy must be designed considering the environment friendly goods.
- College should go with 5R implementations along with SDG goals.
- ECBC compliance for future construction and expansions.
- Existing rain water harvesting system must maintain annual maintenance schedule like twice cavity cleaning along with filter cleaning compressed air.



CONCLUSION

This audit involved extensive consultation with the audit team, interactions with key personnel on wide range of issues related to environmental aspects. The audit has identified some suggestions for making the campus premise more environment friendly. The recommendations and suggestions are mentioned for college campus team to initiate actions.

The audit team opines that the overall site is well-maintained from environmental perspective. Still there are few things that are important to initiate which includes periodic inspection of buildings to increase the energy efficiency.

Even though the college's performance is excellent, the recommendations in this report highlight some additional ways to further improve institution's sustainability initiatives.

REFERENCES

- **The Environment [Protection] Act – 1986 (Amended 1991) & Rules-1986 (Amended 2010)**
- **The Petroleum Act: 1934 – The Petroleum Rules: 2002**
- **The Central Motor Vehicle Act: 1988 (Amended 2011) and The Central Motor Vehicle Rules:1989 (Amended in 2005)**
- **Energy Conservation Act 2010.**
- **The Water [Prevention & Control Of Pollution] Act – 1974 (Amended 1988) & the Water(Prevention & Control of Pollution) Rules – 1975**
- **The Air [Prevention & Control Of Pollution] Act – 1981 (Amended 1987) The Air (Prevention& Control of Pollution) Rules – 1982**
- **The Gas Cylinders Rules – 2016 (Replaces the Gas Cylinder Rules – 1981**
- **E-waste management rules 2016**
- **Electrical Act 2003 (Amended 2001) / Rules 1956 (Amended 2006)**
- **The Hazardous Waste (Management and Handling and Trans-boundary Movement) Rules,2008 (Amended 2016)**
- **The Noise Pollution Regulation & Control rules, 2000 (Amended 2010)**
- **The Batteries (Management and Handling) rules, 2001 (Amended 2010)**
- **Relevant Indian Standard Code practices**



ANNEXURE - PHOTOGRAPHS



Active participation in plantation drive



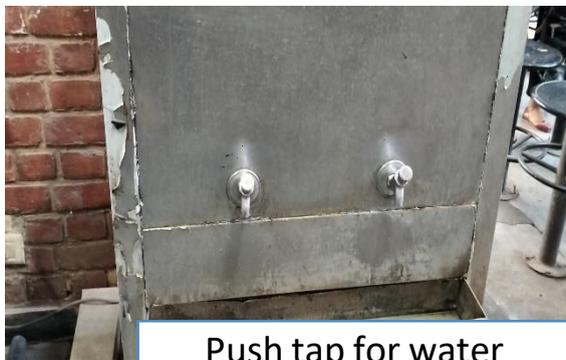
Plantation Drive



Best out of waste activity



Waste paper and old books collection drive



Push tap for water conservation



Color coded dustbins



Bird feeder for bio diversity conservation



Lab waste composter



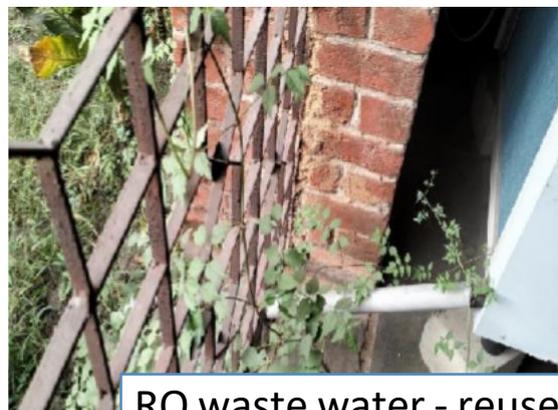
Solar PV installation



Solar Heaters



Energy saving message display



RO waste water - reused for gardening purpose

***** END OF THE REPORT *****