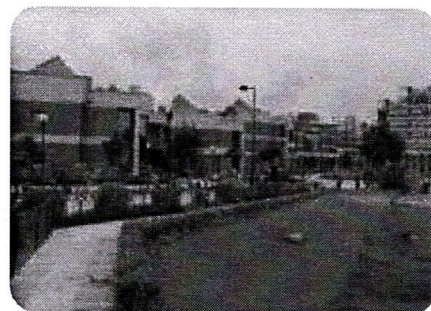


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2022)

ENVIRONMENT AUDIT REPORT (2020-2021)

OF

GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY



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About Environment Audit

Sustainability is emerging as a globally accepted strategy for resource management and the prime step to this management involves an evaluation of the various activities of a project, its impact and their mitigation throughout the life-cycle involving various stages of verification that is obtained through environmental audit. Environmental audit defined as a systematic, documented and objective oriented approach to verify the evidences pertaining to various environmental aspects. It is therefore a useful management tool to identify and periodically inspect the environmental aspects to make any institution environment friendly and sustainable. An audit can also help to facilitate introduction of interventions to improve the efficiency and sustainability of the system. Environmental audit is generally practiced by an external agency or body of a particular organization by inspection of its documents, records and performance of the organizations through mock drills, questionnaires and on-site practice verification. Therefore Environmental audit helps in communicating the results of this process to the concerned management and helps in recommending corrective steps to be followed at the early stage. However, self-audit by an organization comprising of the internal members directly associated with the organization from various sub departments and backgrounds can also help the organization to assess its own performance and enhance the value of an audit before conducting an audit by an external agency.

Consequently, environment audit ensures a two pronged approach of firstly, minimizing potential negative impacts of the organization on the environment and secondly, maximizing the positive impacts of an environmentally sound system of the institutions activities. Guru Gobind Singh Indraprastha University being an educational institution is required to undertake Environment Audit to evaluate whether as an Educational Institute it is ensuring to manage and mitigate any negative impacts on the environment arising due to its activities, and implementing measures such as green cover, finding alternative energy resource, prohibition of petrol driven vehicles inside the campus etc. The present study thus focussed on evaluation of all the strategies and initiatives being implemented by the Institution for a sustainable and environment friendly operation, in Dwarka Campus.

Towards this, Environment Audit of the institution is initiated along with several Sustainability Initiatives beyond the recommendations of the NAAC, so as to ensure that the campus operations are in tandem with achievement of Sustainable Development Goals (SDGs) and will be a role model to all other Institutions. Based on the Decision of the Management, the Institute Dean, University

School of Management Studies & Director (Development) has entrusted the work to Indian Pollution Control Association for assisting the institute for conducting Environment Audit (GA).

Scope, Objectives & Strategy for Environment Audit of GGSIPU

Environment audit enables to identify and provide opportunities to promote sustainable development practices, enhance environmental quality, improve health, hygiene and safety, save resources and achieve values of virtue. Environment Audits are a sub-set of Environmental audits, and can be a highly valuable tool for educational institutions in a wide range of ways to improve their environmental and economic performance and thereby their reputations. The scope of the Environment Audit for GGSIPU is so designed that the process and audit outcome should not only define the state of various environmental components, but also help the institution to compare its own programmes and activities over different years and to compare with other peer institutions. Other benefits should include, educating the students and employees on the environmental issues; identify areas for improvement and prioritize the implementation of future projects. An effective and systematic scheme was designed and adopted to establish the baseline data for various environmental conditions. The aim of Environment Audit is to help the institution to adopt sustainable development practices and to inculcate these concepts in the minds of young engineers, and through them to the nation.

General and Specific Objectives of Environment Audit

The general objective of Environment audit is to prepare a baseline report on the status of

- (i) Landscaping and planning of Green spaces
- (ii) Evaluate the wastes generated and to mitigate resource wastage and improve resource quality and sustainable practices by involving the campus community and through them to reach the public.
- (iii) Identify and evaluate the environment friendly initiatives and energy efficient technologies adopted in the institution.

2. Strategy for Environment Audit at GGSIPU

As the institute is conducting a Environment Audit, for the first time the audit programme was developed after detailed deliberations initiated by the management, staff and the external auditors of IPCA. The GA period was synchronized with the academic year (June 2020 to May 2021).



The whole process was divided into three stages:

- A) Pre-Audit Stage: During this stage, as per the directions of the UGC, a Task Group was constituted by the Competent Authority to work on implementation of "UGC Quality Mandate: Suggestive Academic Activities in the domain of sustainable development of campus. The Task Group submitted its recommendations in the form of a "Framework of UGC Quality Mandated Task Force on Eco-friendly And Sustainable Campus Development" and thereby implemented the activities enlisted in the framework.
- B) Audit Stage: During this stage, collection and validation of the audit evidences are the main activities which are on day-to-day basis and require systematic book keeping and data base development. At the end of this stage, the audit results were analysed by IPCA and the audit report was presented to the Management of the GGSIPU.
- C) Post-Audit Stage: This stage includes management's review of the GA report and issue terms of reference to initiate the GA for the next year.

About the Institution

Guru Gobind Singh Indraprastha University has been established by Govt. of NCT of Delhi under the provisions of Guru Gobind Singh Indraprastha Vishwavidyalaya Act, 1998 as an affiliating cum teaching university which aims at facilitating and promoting studies, research and extension work in emerging areas of higher education with focus on professional education, such as engineering & technology, architecture, management, medicine, pharmacy, nursing, law, etc. The University is recognized by the University Grants Commission (UGC), India under Section 2 (f) and 12 (b) of the UGC Act. The University has also been a "Recognized Social Entrepreneurship, Swachhta and Rural Engagement Cell (SES REC) institution" by Department of Higher Education, Ministry of Education, Govt. of India.

Vision and Mission of the Institution

In order to serve the broad purposes for which the University was established, it set out its statements of Vision, Mission and Quality Policy which read as below:



Vision

"The University will stimulate both the hearts and minds of scholars, empower them to contribute to the welfare of society at large; train them to adopt themselves to the changing needs of the economy; advocate them for cultural leadership to ensure peace, harmony and prosperity for all."

Mission

"Guru Gobind Singh Indraprastha University shall strive hard to provide a market oriented professional education to the student community of India in general and of Delhi in particular, with a view to serving the cause of higher education as well as to meet the needs of the Indian industries by promoting establishment of colleges and Schools of Studies as Centres of Excellence in emerging areas of education with focus on professional education in disciplines of engineering, technology, medicine, education, pharmacy, nursing, law, etc."

Quality Policy

"Guru Gobind Singh Indraprastha University is committed to providing professional education with thrust on creativity, innovation, continuous change and motivating environment for knowledge creation and dissemination through its effective quality management system."

Statement of Objectives of Task Force on Eco-friendly And Sustainable Campus Development

We believe that humanity is rapidly altering the Earth's ecological systems and consuming its natural resources in an unsustainable way. Resolving this crisis will require total system transformation by adopting the principles of sustainability. Respect for life and living within limits are two core principles to achieve this. We believe that higher education is in a unique position to lead this transformation. Therefore for the purpose of demonstrating what we preach as an educational institution, we understand that setting clear strategies and goals and a comprehensive approach needs to be taken which not only integrate the built environment but also goes beyond it and touches every aspect of learning, working, and living in campus. Creation of a campus compatible with the surrounding natural and cultural environments, integration of sustainable features into new building designs by adopting Environment building norms, enhancement of water and energy use efficiency, utilization of materials, services and technologies with less negative environmental impacts, efficient solid waste management are a few steps which are essential for campus sustainability.



University Campuses

In order to realize its Vision and Mission GGSIP University has established two campuses. One of its campuses is known as West Delhi Campus (Main Campus) located in Sector-16 C, Dwarka and the other is known as East Delhi Campus located at Surajmal Vihar.

The present report covers the West Campus of the University which is housed in a lush Environment biodiversity belt of Dwarka, the heart of South West Delhi. The campus is spread over 60 acres of land with all the state of art infrastructural facilities which are comparable to the best in the world keeping the delicate balance among environment, technology and cultural aspects. The campus includes an administrative block, a digital library, an auditorium-cum-exhibition block, hostel for boys and girls, teachers' hostel, playfields, indoor sports complex, health centre and residential quarters for faculty and staff.

University Schools of Studies and Centers

University presently has 13 On-Campus Schools of Studies including the two newly formed University Schools at East Campus and 1 Off-Campus School Medicine and Para Medical Health Sciences. The University has setup two Centers of Excellence in Disaster Management Studies and Pharmaceutical Sciences. The following schools and centers are currently operating from West Delhi Campus, Dwarka, New Delhi.

University School of Studies (USS)

1. University School of Architecture and Planning
2. University School of Basic & Applied Sciences
3. University School of Bio-Technology
4. University School of Chemical Technology
5. University School of Education
6. University School of Environment Management
7. University School of Humanities & Social Sciences
8. University School of Information, Communication & Technology
9. University School of Law & Legal Studies
10. University School of Management Studies



11. University School of Mass Communication
12. University School of Medicine and Para Medical Health Sciences

All the above Schools together offer as many as 49 Undergraduate and Postgraduate academic programs, on the campus, with total enrolment of more than 4500 Students, including both residential and non-residential.

Table 1: Key Features of the GGSIP University

1.	Location of West Delhi Campus	Sector-16 C, Dwarka
2.	Land Area (in Acres)	60
3.	Built up area (in sq. m.)	
4.	Green Area (in Acres)	25 (41.6% of land area)
5.	Total no. of students enrolled	4500
6.	Total no. of Courses	49
7.	No. of students in Hostel	750 (16.6 % of total students)

Role of Student Council

University has a very active Student Council to support in various academic and environment protection related activities. The Student Council has three representational constituents viz. Academic Toppers from pre-final year, nominated members and Elected School Representatives. The members of the council elect their President, Secretary and Executive Committee to manage the activities of the Council. They have representation in some of the University Committees including IQAC which is headed by the Vice Chancellor and recommends all quality initiatives and welfare measures for students and staff, including initiatives for Environment Management and sustainable development of the campus.

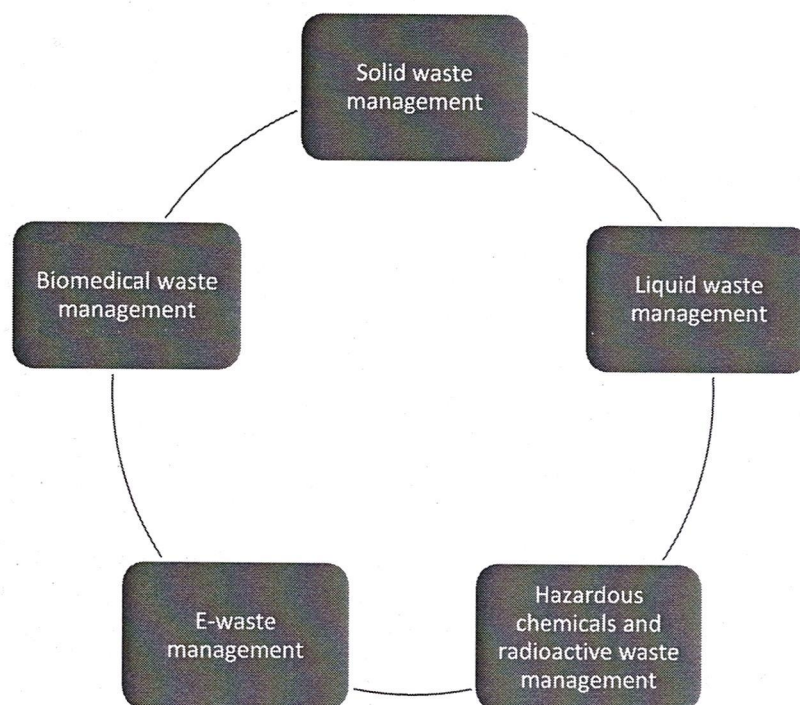
Observations of the Environment Audit Assessment

Certain environment friendly and distinguishing features supporting energy efficiency and environment performance of Dwarka Campus are State of the Art Buildings with following features:

- Innovative landscaping;
- Sewage Treatment Plant (Recycling for flushing, air-conditioning & horticulture);

- Rain Water Harvesting;
- Solid Waste Management
- Disabled friendly - Vehicular free pedestrian walk ways;

Fig.1 The Multi-Pronged Approach of Waste Management in GGSIPU



Liquid Waste Management

Sewage disposal of Buildings in Dwarka Campus for both Academic and Residential buildings is through network of Sewer lines by gravity flow terminating into 500 KLD Sewage Treatment Plant based on extended aeration system. Sewage Treatment plant has been designed on modular basis catering to need of phase-I buildings (500KLD) and extendable in future phases upto 1000KLD.

Sewage after treatment through extended aeration in equalization, aeration, settling and sludge tank is filtered through sand filter and activate carbon filter. The treated water is used for horticulture purpose through a network of garden hydrants spread over the campus.

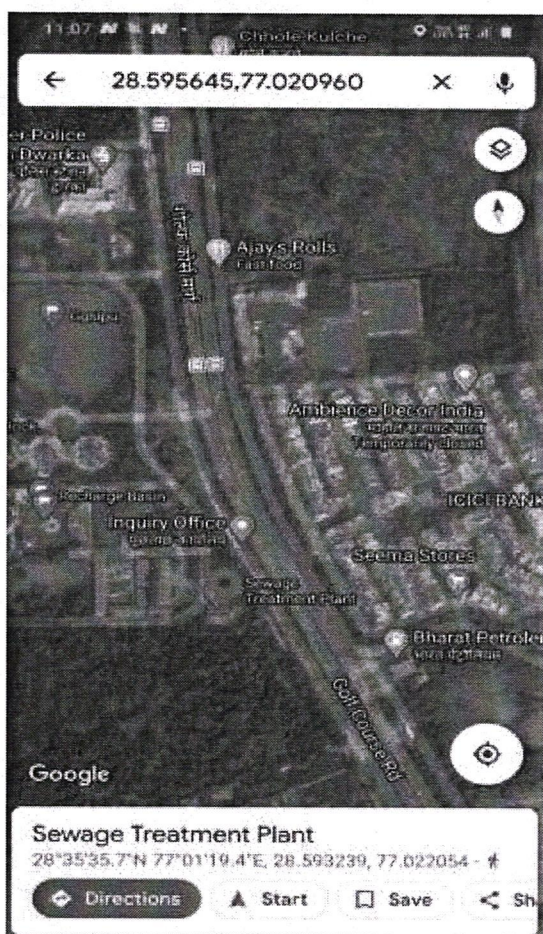


Fig. 2 Coordinates of location of the Sewage Treatment Plant in the campus of GGSIPU

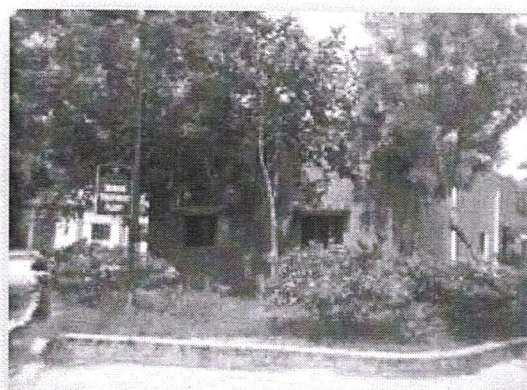


Fig. 3 Existing Sewage treatment plant for the treatment and recycling of the treated water in the Campus

Part of the treated water is further treated in water softening plant to meet the requirements of hardness and supplied to cooling towers of Central Air Conditioning plant and Diesel Generating Set. No liquid waste of Dwarka Campus is disposed off in the municipal Sewer line. About 100 KL of recycled water is supplied for horticulture purpose per day and 60 KL is supplied for air conditioning.

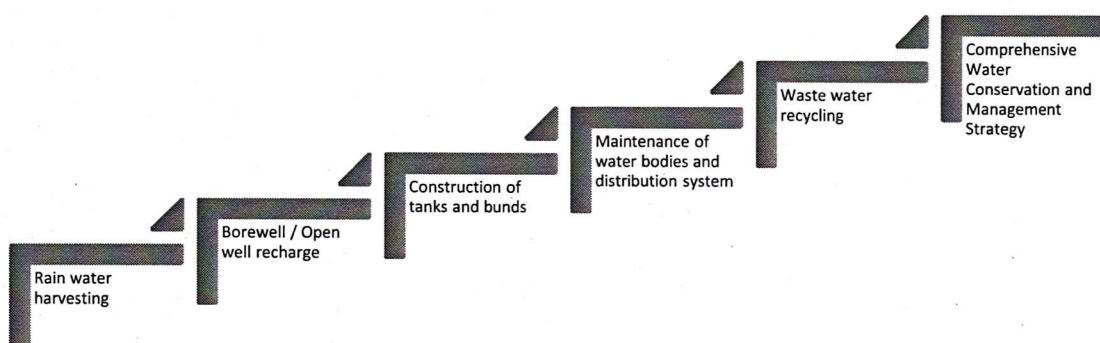
Water Conservation

University Campus is spread over on area of 60 acres out of which about 30 acres area is under soft landscape. Most of the soft areas have been confined to retain the storm water thereby preventing surface runoff and thus allow maximum ground recharge. Entire storm water drainage system for run off from Roof Top/Open Terraces of buildings and road/pathway has been designed for ground water recharging with a network of 26 recharge pits spread over the campus and three (3) recharge basins. Roof top rain water and surface run off from road and path first enters the storm water

network which then flows into the recharge pits passing through the desilting chamber. Each recharge pit has three bores of 150mm dia with slotted PVC pipe encasing up to 3m below the underground aquifer allowing the ground recharging. The overflow from the recharge pits then enters back the storm water drain system and flows into the recharge basins. These basins have retention capacity of 100KL, 50KL 40KL each for ground recharging. The recharge basin in Academic area is been designed with stepped seating surrounded by stepped seating and Greenery.

The cleaning of filter media in the recharge pits is taken up every year for efficient ground recharge along with cleaning of sump for removal of silt deposition.

Fig 4 The Comprehensive Step by Step Strategy for Water Conservation and Management in GGSIPU



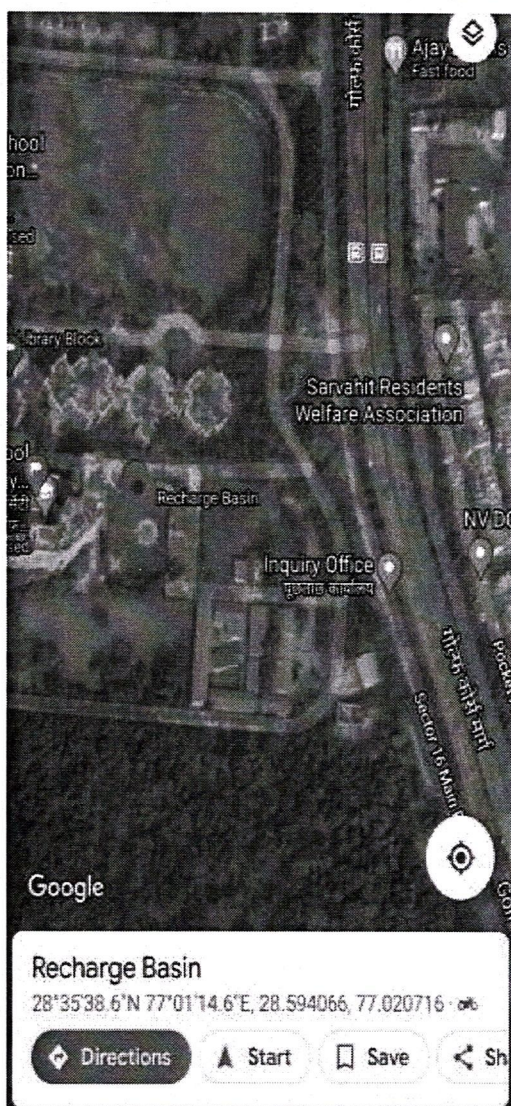


Fig. 5 Location Coordinates of the Recharge Basin in the Campus

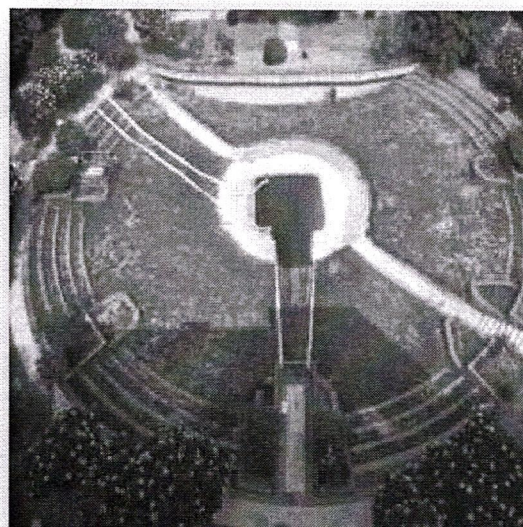


Fig. 6 Design of the Rainwater Recharging Pit in the Campus

Solid Waste Re-cycling System

Solid waste generated by various buildings and horticulture waste is recycled in compost plant installed at garbage shed near STP. The compost plant has capacity of recycling 50 kg of waste on

daily basis and has recycling period of 7 days. The manure produced by the compost plant is used for horticulture purposes.



Fig. 7 Coordinates of the Installed composter for identifying Location within the campus

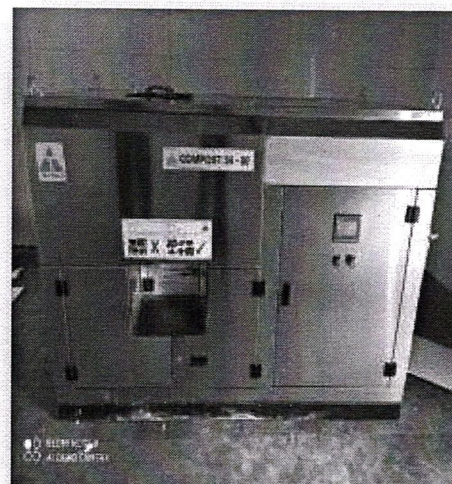


Fig. 8 Fully automatic Mechanical Composter installed in the Campus for conversion of organic waste into manure

Existing Institutional Practices Relating to Sustainability Goals

University Canteen is already using bio-degradable plates, spoons and other items. Use of single-use plastic is banned in all the meetings, university events as well as daily servings in University Canteen. University Schools of Studies organise events relating to environmental issues, such as World Environment Day, Biodiversity Day, Workshop on Air Pollution just before Deepawali to sensitize the



University community about the impact of polluted air on human life as well as environment. Lot of official communication by University Schools of studies is being done through emails to save paper. Similarly single side printed papers are also reused by University staff for their official purposes regularly.

Srijan Clubs are doing many activities related to nature, environment and sustainability issues. Film and Photography Club is conducting regular campus walks and photo sessions on natural life of University campus. Nature Club is doing nature awareness activities.

Initiatives for Cultivating an Environment Friendly Culture

- i. Creating an institutional culture which support sustainable thinking reflected in the curricular and co-curricular activities
- ii. Establishing a teaching, learning and research environment by incorporating sustainable practices in all kinds of developmental and academic activities
- iii. Contributing to sustainability knowledge development and innovations by conducting sustainability related research studies
- iv. Transferring sustainability knowledge to the larger community by way of outreach programmes
- v. Evaluating procurement policy of goods and services based on cost, complexity and actual potential sustainability.

Green campus initiatives include

1. Restricted entry of automobiles
2. Use of Bicycles/ Battery powered vehicles
3. Pedestrian Friendly pathways
4. Ban on use of Plastic
5. landscaping with trees and plants

Operation and Maintenance of all systems by University Works Division

Guru Gobind Singh Indraprastha University, Dwarka Campus has diverse nature of services like Central Air Conditioning Plant, Lifts, DG Sets, Substation equipment (Transformers, Panels, RMU's



etc.), Sewage Treatment Plant, Fire Fighting Pump, Water Supply Pumps, Fire Detection and Alarm System, RO system etc. Most of these equipment / systems have been put on Annual Maintenance Contract covering preventive and breakdown maintenance to ensure smooth functioning. Besides AMC some of the equipment like, DG sets, HVAC Plant, STP Plant have also been put on operation through outsourcing agency to ensure availability of Electricity, Water, Air Conditioning etc. to students/staff.

A complaint redressal mechanism is in place to address and rectify the complaints of users in civil and electrical infrastructure. An online complaint form is available on the University website. Any user can file the online complaint of defect/non-functional service, which then is attended by concerned Junior engineer. Users can also file their complaint directly at complaint centre directly or on telephone number designated for the purpose. On receipt of complaint, a unique number for each complaint is allotted and task is assigned to the respective worker. The workers attend the complaints and note the same in workers diary duly signed by user acknowledging the rectification of complaint. An email is also then sent to the user about rectification of complaint.

For the purpose of AMC, Operation and Complaint Redressal, annual budget and expenditure sanction is accorded by competent authority of the University.

Recommendations of the Environment Audit

The GGSIPU management has ensured to implement a comprehensive environment management in the campus of the institution; however, to fulfill the objective of continuous improvement and to strive for higher standards of environmental performance, following recommendations are given for implementation in future.

1. The Management of the University should draft its environment policy enumerating the aspects of environment being protected by its operations and the philosophy of implementing its institutional responsibilities in environment conscious manner. A good environment management policy requires that there should be constant efforts to analyze and monitor various organizational working systems and processes, to generate and transmit this information for the inspecting authority.
2. University has a very active Student Council to support in various academic and other endeavors. The Student Council has three representational constituents viz. Academic



Toppers from pre-final year, nominated members and Elected School Representatives. The members of the council elect their President, Secretary and Executive Committee to manage the activities of the Council. They have representation in some of the University Committees including IQAC which is headed by the Vice Chancellor and recommends all quality initiatives and welfare measures for students and staff. Thus, student council shall be given a mandate to implement initiatives for Environment Management and sustainable development of the campus, and to celebrate all Environment related key days throughout the year, to enable all the students to realize the efforts made by the university in creating Sustainable Environment in the campus, and to contribute individually towards the same.

3. The students enrolled in Environmental related courses in the University must be involved in regular monitoring of air, water, noise, soil, biodiversity etc. along with monitoring through NABL accredited external laboratory.
4. Environment monitoring shall be conducted every Six months for air, noise, drinking water, treated water, groundwater, biodiversity, soil etc.
5. A Comprehensive Environment Management and mitigation plan should be prepared with schedule of maintenance of each component of the services covered for environment management in the campus, along with roles and responsibilities of services and operation team.



Preface

The optimum utilization of existing natural resources with minimal disturbance to the environment should be a key strategy which should be adopted by any educational institution. It is pertinent not only for successful achievement its vision and mission but for educating its students about sustainable development through protection of environment. Environment audit therefore becomes an integral part of an institution to review the infrastructural planning of its facilities and its implementation in various aspects of the functionalities of an organization. Thus, Environment audit not only helps to strengthen the internal working environment of an educational institute but also helps in resolving many bottlenecks, through identification of inefficient operational practices and unnecessary economic loads. Evaluation of impacts on the natural resources within the premises due to the routine activities of the organization also adds a value to the sustainable development of the organization. The present evaluation of the environmental resources (air, water, soil) of Guru Gobind Singh Indraprastha University, Dwarka Campus was therefore carried out to study the impact of the institutional activities on these resources. The results of the study revealed that the environmental and energy resources are being utilized sustainable. The present quality of air/noise, water and soil are well within the prescribed limits and hence the university can be considered as a green and serene place with ideal environment for higher education. However, continuous and regular monitoring of the environmental quality in future is pertinent to ensure the development with the sustainable practice inside the campus.