GREEN AUDIT REPORT

OF

KING GEORGE'S MEDICAL UNIVERSITY

SHAH MINA RD, CHOWK, LUCKNOW, UTTAR PRADESH (226003)

INGENYRIA PROJECTS PVT LTD

ISSUED BY DELHI/NCR OFFICE

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ACKNOWLEDGEMENT

Ingenyria Projects Pvt. Ltd. expresses its sincere thanks to

- Dr. Kirti Srivastava, Professor Department of Radiotherapy, Member Secretary Environment Committee.
- Dr. Mohd. Parwez, Head of the University Environment Department
- Er. Birendra Kumar Dubey, JE, PWD, Electrical
- Er. Babloo Singh, JE, PWD, Mechanical

And King George's Medical University, Lucknow, Uttar Pradesh management for the wholehearted cooperation in successful completion of the study and for the courtesy and support extended to our team during the project execution.

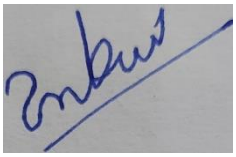
We also gratefully acknowledge their advice, suggestion and cooperation provided to us by other supporting staff in obtaining required data from different sources.

CERTIFICATE

This is to certify that we have conducted the detailed "Green Audit" of King George's Medical University Campus (KGMU), Lucknow (UP) on dated 16th & 17th Sept, 2022. During the green audit we carried out the detailed analysis of the KGMU campus for its initiatives on the environment sustainability and consistency. During this audit, we have evaluated the entire campus on 15 different parameters of environment sustainability as:

a) Water Management System
b) Waste Water Treatment
c) Green spaces in the campus and their status
d) Waste Segregation
e) Bio Medical Waste (BMW) management
f) General Waste Management
g) Plastic Waste Management.
h) Air, noise & water quality monitoring.
i) Action log on the reduction of the plastic.
j) Energy Efficiency & targets.
k) Green energy & its adoption.
l) Reduction in the carbon foot prints.
m) Green initiatives in the local contexts.
n) Training & Communication.
o) Awareness among the masses.

During this green audit, we found that the KGMU team of subject matter specialists is working towards the environment system sustainability. The awareness about the green spaces has enhanced and the team is able to connect this with **Swatch Bharat Abhiyaan**. KGMU campus has also developing the plan to enhance the green spaces by awareness, geo-tagging of the trees & other technological upgradation.



Date: 01.10.2022

Place: Delhi

Auth. Signature

1. INTRODUCTION

1.1. ABOUT COLLEGE

King George's Medical University is a medical school, hospital, and medical university located in Lucknow, Uttar Pradesh, India. The medical school was raised to a medical university by an act passed by the government of Uttar Pradesh on 16 September 2002. The University has about 1250 undergraduate students (including 280 dental students) and 450 postgraduate students. About 250 students a year are admitted to the four-and-a-half-year course of study for the degree of M.B.B.S.

FACULTIES AND INSTITUTES

- Faculty of Medical Sciences
- Faculty of Dental Sciences
- Institute of Paramedical Sciences
- Institute of Nursing

COURSES & UG PROGRAMME

- MBBS
- BDS, MDS
- MD/MS
- PG Diploma Courses
- Diploma in Psychiatric/Mental Health Nursing
- Diploma Dental Hygienist, Diploma Dental Mechanics
- Super speciality Courses (DM/ MCh)
- M.Phil. in Translational Health Science
- B. Sc. Nursing

1.2. GEOGRAPHICAL PARAMETERS

King George's Medical University (KGMU hereafter) is situated in the heart of the historic city of Lucknow which is the capital of India's most populous state Uttar Pradesh. Lucknow lies about 500 km east of Delhi. The city was the seat of the Nawabs of Awadh in the 19th century and a centre for the arts - music, painting, dance, 'shatranj' or chess, kite flying and 'tehzeeb' or culture. The university campus adjoins the crowded 'Chowk' area and is off Shahmina Road, very close to the bank of River Gomti.

The university campus is spread over an area of roughly 100,000 square metres. It is situated about 5 km from Charbagh Railway Station and is well connected to all parts of the city by public transport systems such as bus, tempo and taxi.

The covered area details of the KGM University are as follows;

S. No.	Description	Area (m^2) **(**Approximate)
1.	Land Area	649999.20 Square meter (160.6183 Acre)
2.	Ground coverage / Plinth Area	151011.86 Square meter
3.	Built-up Area (floor wise)	498059.68 Square meter

Image source: https://www.kgmu.org/campus_map.php

In the above map, the departments, building and areas listed below are marked.

Hospital / Clinical Departments	Hostels / Guest Houses
OPD Building	Resident quarters
Urology	CV Hostel
Tuberculosis & Chest Diseases	Old Boys' Association Guest House
Dental University Building	VL Hostel (New)
Main Hospital Building with Superintendent / Pro	Nurses Hostel
Fracture Clinic	VL Hostel (Old)

Private Wards / Paraplegia Unit	VL Hostel (Ultra New)
Internal medicine	Nehru Hostel (old & new)
Neurology	Residents' Hostel
Dialysis Unit	University Guest House
New Surgical Block	Sardar Patel Hostel
Geriatric Mental Health	Lady Residents' Hostel
Cardiology	Trans Gomti Hostel
Dental Hospital (New)	Miscellaneous
Queen Mary's Hospital	Shahmina Tomb & Mosque
Anaesthesia	Kitchen
Plastic Surgery	Store
Neurosurgery	Works Departments Office
New Paediatric Surgery & Surgical Oncology	Mortuary
Block (under construction)	Toilets
Ophthalmology	Underground Parking Lot
Paediatrics	College / Nonclinical Departments
Paediatrics (extn)	Pharmacology
Forensic Medicine	Central library
New Dental University Building	Anatomy
Psychiatry	Administrative Block with KGMCICE
CT Scan and MRI	Blood Bank
New Ophthalmic Block	Pathology / Microbiology

Centenary Hospital Complex	Physiology / Biochemistry
CT Scan Unit	Community Medicine
Residences & Bungalows	Scientific Convention Centre
Doctors Residences	New Registrar & Finance Office
Sister's Residence	Casualty
Staff Quarters	New Casualty (Surgical Emergency and Trauma Centre)
New VC Residence	
Out Houses	

1.3. VISION, MISSION & OBJECTIVE OF THE COLLEGE[1]

Vision

- To be an outstanding University of Medical Excellence in the world in education, research and patient care.

Mission

- To become one of the world's best providers of high-quality teaching and excellence in education
- Generate outstanding leaders in health sciences
- Promote multidisciplinary scientific biomedical research
- Provide compassionate, patient-centred care of the highest quality

Objectives:

- To effectively implement programs through creativity, innovation in teaching, learning and evaluation.
- Inculcate communication skills and scientific temperament among faculty and students through research-oriented activities.
- Enhance competency through knowledge and skills, reading and learning activities, continuous objective oriented student performance evaluation.
- Nurture professionalism and behavioural skills in medical professionals.

[1] Source: https://www.kgmu.org/mission.php

- Incorporate medical ethics, moral values, team spirit, responsibilities and sense of integrity in medical faculty and students.
- Ensure academic, career and personal counselling.
- Collect patient-oriented evidence that matters.
- Adopt transparency and accountability in academic and administrative activities.
- Develop, design and implement innovative and translational scientific discoveries.
- Discover, understand and improve the health of populations, communities and societies.

1.4. CAMPUS INFORMATION

List of departments at the KGM university campus is as follows;

DEPARTMENTS OF KGMU- LUCKNOW	
Anaesthesiology and Critical Care	Oral Pathology
Anatomy	Oral & Maxillofacial Surgery
Biochemistry	Oral Medicine & Radiology
Cardiology	Orthodontics & Dentofacial Orthopaedics
Cardiovascular & Thoracic Surgery	Orthopaedic Surgery
Centre for Advanced Research (CFAR)	Otorhinolaryngology & Head Neck Surgery
Clinical Haematology	Paediatric and Preventive Dentistry
Clinical Immunology and Rheumatology	Paediatric Anaesthesia
Community Medicine	Paediatric Oncology
Conservative Dentistry & Endodontics	Paediatric Orthopaedics
Critical Care Medicine	Pathology
Dermatology, Venereology & Leprosy	Paediatric Surgery
Emergency Medicine	Paediatrics
Endocrine Surgery	Periodontology

DEPARTMENTS OF KGMU- LUCKNOW	
Family Medicine	Pharmacology
Forensic Medicine & Toxicology	Physical Medicine & Rehabilitation
Geriatric Mental Health	Physiology
Guest Faculty	Plastic & Reconstructive Surgery
Hospital Administration	Prosthodontics
Medical Education	Psychiatry
Medical Endocrinology	Public Health Dentistry
Medical Gastroenterology	Pulmonary & Critical Care Medicine
Medical Oncology	Radiodiagnosis
Medicine	Radiotherapy
Microbiology	Respiratory Medicine
Nephrology	Sports Medicine / Sports Injury
Neuro Anaesthesia	Surgery
Neuro Surgery	Surgical Gastroenterology
Neurology	Surgical Oncology
Nuclear Medicine	Thoracic Surgery
Nursing	Transfusion Medicine
Obstetrics & Gynaecology	Transplantation
Ophthalmology	Trauma Surgery

DEPARTMENTS OF KGMU- LUCKNOW	
Vascular Surgery	Urology

2. BASICS OF GREEN AUDIT

2.1. OBJECTIVES OF GREEN AUDIT

The main objectives of the green audit are to assess the environmental quality and the management strategies being implemented in KGMU Campus, Lucknow, Uttar Pradesh. The specific objectives are:

- To assess the quality of the water and soil in the KGMU campus.
- To monitor the energy consumption pattern of the campus.
- To quantify the liquid and solid waste generation and management plans in the campus.
- To assess the carbon foot print of the campus.
- To assess whether the measures implemented by KGMU have helped to reduce the Carbon Footprint.
- To impart environment management plans to the campus.
- Providing a database for corrective actions and future plans.
- To assess whether extracurricular activities of the Institution support the collection, recovery, reuse and recycling of solid wastes.
- To identify the gap areas and suggest recommendations to improve the Green Campus status of the KGMU Campus.

2.2. TARGET AREAS OF GREEN AUDITING

Green audit forms part of a resource management process. Although they are individual events, the real value of green audit is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time. Eco-campus concept mainly focuses on the efficient use of energy and water; minimize waste generation or pollution and also economic efficiency. All these indicators are assessed in the process of “Green Auditing of this educational institute". Eco-campus focuses on the reduction of contribution to emissions, procure a cost effective and secure supply of energy, encourage and enhance energy use conservation, promotes personal action, reduce the institute’s energy and water consumption, reduce wastes to landfill, and integrate environmental considerations into all contracts and services considered to have significant environmental impacts. Target areas included in this green auditing are water, energy, waste, green campus and carbon footprint.

2.3. METHODOLOGY ADOPTED

The methodology adopted to conduct the Green Audit of the Institution had the following components;

- Onsite Visit of two-day was conducted by the Green Audit Team. The key focus of the visit was on assessing the status of the green cover of the Institution, their waste management practices and energy conservation strategies etc.
- Data analysis and report preparation.

2.4. GREEN AUDIT TEAM

The audit team from Ingenyria Project Pvt. Ltd. Was;

- Mr. Ankush Prashar (Lead auditor)
- Mr. Shishpal Negi

3. EXECUTIVE SUMMARY

This report is an attempt of Ingenyria Projects Pvt. Ltd. to provide an overview of the water management system, waste management system, energy management system, cabon footprint of the KGM university and air, noise and water quality against green audit at King George's Medical University, Lucknow, Uttar Pradesh. A set of recommendations which will assist in achieving the green campus has also been highlighted in this report. This report has emerged after a detailed green audit conducted in King George's Medical University, Lucknow, Uttar Pradesh on 16th September & 17th September 2022.

At KGM university, there is scope for further improvement, particularly in relation to waste water management, energy and water management. Also, action needs to be taken for monitoring air, noise and water quality at the university premise. The suggestions are as follows;

- Digital water flow meter shall be installed at each borewell at the university and hostel campus to calculate the daily water consumption of the university. Along with this, it is recommended to install piezometers to monitor the ground water level, one piezometer at university campus would be sufficient.
- During the audit, 6636 KLD (approx.) of daily water consumption has been calculated on the basis of running hour and discharge capacity of the pump. It is recommended to conduct a detail water audit for the facility as the water consumption is on higher side and steps shall be taken to reduce the water consumption at the university. Also, it is suggested to measure the annual recharge potential through rain water harvesting structures.

S. N.	Locations	Number of Pumps	Running Hours	LPM	KLD	Remarks
1	University Campus	3	24	800	3456	
2		9	7	800	3024	
3		Daily consumption (kL)			6480	(A)
4		Annually consumption (kL)			2365200	(C)
5	Hostels at KGMU	26	5	20	156	(B)
6		Daily consumption (kL)			156	(D)
7		Annual consumption (kL)			56940	
Daily consumption (University campus & hostel) (kL)					**6636**	**(E=A+B)**

S. N.	Locations	Number of Pumps	Running Hours	LPM	KLD	Remarks
Annual consumption (University campus & hostel) (kL)					**23,65,356**	**(F=C+D)**

- Total 1370 KW of rooftop solar panels is installed at the university; which is 10% of the total power demand of the university. Steps shall be taken to increase the solar power (renewable power sources) to achieve usage of maximum green energy for the university campus. This would help to reduce the consumption of the diesel at the site and thus will reduce the carbon emission.

Sr. No.	Source of energy	Capacity/Demand
1	State Electricity Board (thermal Source)	13.27 MW
2	Rooftop Solar (renewable source)	1370 KW
3	DG Set (for power Back-up)	8713 KVA (Approx.)

- Petrol and diesel operated vehicles are being used at the university campus for commuting from one area to other. KGM university can take some steps to introduce the electric carts or e-rikshaws at the university premise to reduce the carbon footprints of the university.

Items	**Units / Year**	**Quantity**	**Emission Factor**	**kg of CO_2-e**	**Remarks**
Electricity Consumption	kWh	26282700	0.85	22340295	From energy audit report
Petrol	Liters	250000	2.296	574000	Approx. (considering 2000 cars in a day in university campus)
Diesel	Liters	40610	2.653	107738.3	From energy audit report
LPG	kg	168891	2.983	503801.9	From energy audit report
Carbon Footprint (t CO_2-e)	**23525.84**				

- KGM university shall develop a system for monitoring the air and noise pollution at the university and these parameters shall be monitored daily at the university campus.
- The waste water of the entire university shall be treated. For this purpose, only one STP unit of 500KLD is installed at the university campus. However, university is working on the other STP units.
- M/s Synergy Waste Management (P) Ltd. is handling the waste of the KGM university. The total maximum quantity permitted to the vendor is 1103.36 kg/day of yellow type of waste, 68.18 kg/day of red type of waste and 12.17 kg/day of white type of waste. However, as per the record, the average waste generated in year 2019 was 325.45 kg of yellow waste per day and 663.48 kg of red waste per day. In year 2020; 329.23 kg of yellow waste per day and 458.83 kg of red waste per day was generated. In year 2021; 414.26 kg of yellow waste per day and 568.23 kg of red waste per day was generated. Hence, it is recommended to review the daily quantity of the waste permitted for handling to the vendor and action shall be taken accordingly. The table is shown below.

Type of waste	Permitted waste quantity per day (kg/day)	Waste generated in year 2019 (kg/day) (average)	Waste generated in year 2020 (kg/day) (average)	Waste generated in year 2021 (kg/day) (average)
Red Waste	68.18	663.48	458.83	568.23
Yellow Waste	1103.36	325.45	329.29	414.26
White Waste	12.17	No data	No data	No Data
Total Waste	1183.71			

4. GREEN AUDIT OBSERVATIONS

During the green audit, we carried out the detailed analysis of the KGM University campus for its initiatives on the environment sustainability and consistency. During this audit, we have evaluated the entire campus on the following parameters;

- Water Management System
- Waste Management System (Bio-medical, General and Hazardous Waste)
- Green spaces in the campus and green initiatives.
- Air, Noise & Water quality monitoring system.
- Energy Management System with green energy adoption techniques.
- Analysis of carbon footprints
- Training, Communication and awareness among the masses.

The details of the following parameters are explained below;

4.1. WATER MANAGEMENT SYSTEM

At KGM University, the source of water supply is only borewells. As per the data available, there are fourteen (14) bore wells at the university campus servicing the water demand of the university and for hostels, approx. 25 to 26 bore wells are installed. Other than this, some of the borewells at the university campus are not in working condition.

Water flow meters are not installed at any of the pumps installed at the bore-wells. Thus, the consumption of the water cannot be assured during the audit. However, the same has been calculated with the running hour and LPM of the pump. The calculations are as follows;

S. N.	Locations	Number of Pumps	Running Hours	LPM	KLD	Remarks
1	University Campus	3	24	800	3456	
2		9	7	800	3024	
3		Daily consumption (kL)			6480	(A)
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S. N.	Locations	Number of Pumps	Running Hours	LPM	KLD	Remarks
Daily consumption (University campus & hostel) (kL)					**6636**	**(E=A+B)**
Annual consumption (University campus & hostel) (kL)					**23,65,356**	**(F=C+D)**

The details of the working borewells for the university campus are tabulated below;

S.N.	RESOURCE	AREA	QUANTITY
1	TUBEWELL	HOSTEL	2
2	TUBEWELL	BUDDHA HOSTEL	1
3	TUBEWELL	FACULTY AWAAS	1
4	TUBEWELL	BRIDDHA MAANSIK	1
5	TUBEWELL	CTBS (HEART)	1
6	TUBEWELL	SHATABDI PHASE 1	1
7	TUBEWELL	SHATABDI PHASE 2	1
8	TUBEWELL	BACKSIDE OF SHATABDI PHASE 2	1
9	TUBEWELL	NEW OPD	1
10	TUBEWELL	TRAUMA	1
11	TUBEWELL	MEDICAL GANDHI WARD	1
12	TUBEWELL	REGISTRAR	1
13	TUBEWELL	RLC	1

4.1.1. RAIN WATER HARVESTING

The concept of rain water harvesting is an ancient one and has become popular in recent times because of the vagaries of the monsoon, depleting water resources, its user friendliness. It has become an important and eco-friendly tool to protect ground water, useful and cost-effective

method to boost water resources in any area. Rainwater harvesting is the technique of collection and storage of rainwater at surface or in sub-surface aquifers, before it is lost as surface run-off.

The details of rain water harvesting in the premise is provided below;

S. N.	Rain Water Harvesting Locations/ Areas	Qty (Nos)
1.	Kalam centre (Teaching block)	02
2.	New OPD.	01
3.	Shatabdi Hospital Phase-1	01
4.	Shatabdi Hospital Phase-2	01
5.	Trauma centre	01
6.	Bio-chemistry Department	01
7.	Paediatric Surgery Department	01
8.	Gautam Buddha Hostel	02
9.	Multistorey Teachers flats T.G. campus	01
10.	Multistorey Boys Hostel T.G. campus	01
11.	Transit Nurses Hostel T.G. campus	04
12.	New Dental building	01
13.	Central Library	01
14.	Faculty Residence type -5 Jagat Narayan road (A block)	01
15.	Faculty Residence type -5 Jagat Narayan road (B block)	01
16.	U.G. Girls Hostel	01
17.	P.G. Girls Hostel	01
18.	Forensic Medicine and Toxicology Department	01

S. N.	Rain Water Harvesting Locations/ Areas	Qty (Nos)
19.	ETHSC. Banthra	02
20.	ETHSC. Mati	03
21.	Teachers and staff residence in Amrapali Yojna- Hardoi road	03
22.	Centre for Excellence for Nursing & Midwifery Training	01
	Total numbers of Rain Water Harvesting tank	**32**

Some of ongoing projects for the rain water harvesting are as follows.

S. N.	Rain Water Harvesting Locations/ Areas
1.	Expansion of Lari Cardiology Department
2.	New Hostel block in TG. Hostel campus
3.	CTVS. Department
4.	Spine centre
5.	300 bed Hospital, Balrampur

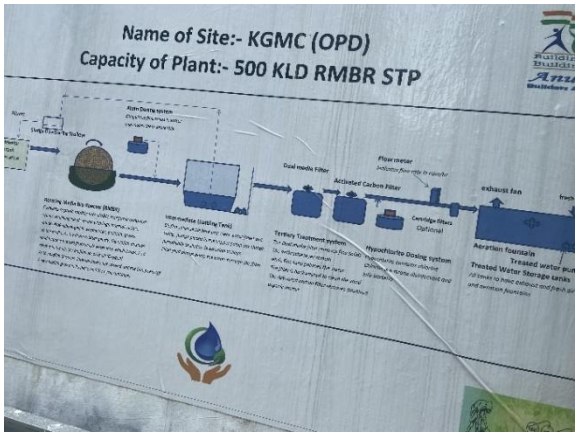
4.2. WASTE MANAGEMENT SYSTEM

KGM university is doing its waste management in the waste management through the environment department. The waste is segregate into solid waste and waste water and several measures has been taken for the waste management by the university.

The KGM university has adopted a policy of waste segregated at the point of the generation. This policy has been implemented at the university with the help of head of departments and nodal officers.

4.2.1. WASTE WATER MANAGEMENT

KGM university has installed a STP unit of 500 kLD for waste water treatment and there are two more STP units are in planning and construction phase.



4.2.2. SOLID WASTE MANAGEMENT

KGM university has appointed M/s Synergy Waste management (P) Ltd. For collection, storage, reception, treatment and disposal of the biomedical waste. The quantity permitted for handling the waste is as follows.

Type of Waste Category	Qunatity Permitted for handling (kg/day)
Yellow	1103.36
Red	68.18
White (translucent) Blue	12.17
Total Weight	**1183.70 kg/day**

The solid waste of the university has been segregated into the following categories and this is as per the waste segregation policy of the university.

Colour Coding	Type of container	Waste Category	Items	Terminal Disposal
Black	Plastic Bin with poly bag	Non-infected General waste	Municipal waste such as office waste (like paper waste). Kitchen waste, food waste, disposable glasses & bottles, non-infected plaster casts	Landfill by nagar nigam

Colour Coding	Type of container	Waste Category	Items	Terminal Disposal
Red	Plastic Bin with poly bag	Infected Plastic/rubber waste	Waste generated from disposable plastic/rubber items (other than sharps) such as tubing's, hand gloves, plastic saline bottles and IV tubes, catheters, intravenous sets etc.	Autoclaving & Shredding Recycling By KGMU
Yellow	Plastic Bin with poly bag	Infected Non- Plastic waste	Non-plastic items contaminated with blood and body fluids including cotton, dressings, contaminated plaster casts, linen, beddings, others.	Incineration Ash Deep Burial
Transparent Puncture proof	Puncture-proof containers, no poly bags	All sharps	Needles, scalpel blades, broken ampoules, stellates of venflons, razors, sharp instruments etc	Autoclaving & Shredding Recycling/ pit
Blue	Plastic Bucket with Lid	Non-infected Glass	Glass bottles & medication vials (not ampoules)	Disinfected with 10% hypo solution for 0.5 hr.
White	Plastic Bin, no poly bag	Liquid Waste	Sputum, aspirates from body (ascitic fluid, pleural/pericardial effusion, dialysis etc	Disinfected with 10% hypo solution for 0.5 hr and drain

Amount of Waste Produced at KGMU UP, Lucknow for last three years is as follows;

Amount of Waste Produced KGMU UP, Lucknow (Period: January, 2019 to December, 2019)

S. N.	Month	Total Waste	General Waste	Bio-Medical Waste in Kg								Total Bio-Medical Waste	Paper/ Card-board	Total Waste of per day per bed (Kg)
				Yellow (Incinerable Waste)	Yellow Waste/ Day	Red (Infected Plastic Waste)	Red Waste/ Day	Sharps	Sharps/ Day	Glass	Glass/ Day			
1	January,2019	1,81,470.70	1,52,803.50	6,350.00	**204.84**	18,662.70	**602.02**	134.50	4.34	3,520.00	113.55	28,667.20	1691	1.95
2	February,2019	1,65,602.20	1,38,538.00	5,843.00	**208.68**	17,853.70	**637.63**	145.50	5.20	3,222.00	115.07	27,064.20	1776	1.91
3	March, 2019	1,84,701.25	1,53,711.00	8,220.00	**265.16**	19,287.55	**622.18**	168.70	5.44	3,314.00	106.90	30,990.25	2031	1.99
4	April, 2019	1,91,093.05	1,59,915.00	8,585.00	**286.17**	18,840.75	**628.03**	117.30	3.91	3,635.00	121.17	31,178.05	1777	2.12
5	May, 2019	1,91,349.25	1,61,396.50	8,495.00	**274.03**	17,638.55	**568.99**	118.20	3.81	3,701.00	119.39	29,952.75	1545	2.06
6	June,2019	1,91,411.41	1,57,379.00	9,648.00	**321.60**	19,069.76	**635.66**	152.56	5.09	5,162.09	172.07	34,032.41	2060	2.07
7	July,2019	2,14,889.06	1,72,654.50	13,919.00	**449.00**	22,272.03	**718.45**	222.71	7.18	5,820.82	187.77	42,234.56	2260	2.31
8	August,2019	2,11,574.55	1,70,450.00	12,783.00	**412.35**	21,407.00	**690.55**	286.30	9.24	6,648.25	214.46	41,124.55	1966	2.27

S. N.	Month	Total Waste	General Waste	Bio-Medical Waste in Kg								Total Bio-Medical Waste	Paper/ Card-board	Total Waste of per day per bed (Kg)
				Yellow (Incinerable Waste)	Yellow Waste/ Day	Red (Infected Plastic Waste)	Red Waste/ Day	Sharps	Sharps/ Day	Glass	Glass/ Day			
9	September,2019	2,15,362.10	1,75,294.50	11,358.00	**378.60**	22,611.80	**753.73**	202.55	6.75	5,895.25	196.51	40,067.60	1653	2.33
10	October,2019	2,11,058.80	1,72,120.00	10,900.00	**351.61**	21,772.55	**702.34**	259.05	8.36	6,007.20	193.78	38,938.80	1862	2.27
11	November, 2019	2,11,907.20	1,73,262.00	11,358.00	**378.60**	21,686.15	**722.87**	268.00	8.93	5,333.05	177.77	38,645.20	1960	2.29
12	December,2019	2,21,182.90	1,82,569.00	11,619.00	**374.81**	21,058.60	**679.31**	254.75	8.22	5,681.55	183.28	38,613.90	1706	2.38

Amount of Waste Produced KGMU UP, Lucknow ((Period: January, 2020 to December, 2020)

Sn.	Month	Total Waste	General Waste	Bio-Medical Waste in Kg							Glass/Day	Total Bio-Medical Waste	Paper/ Cardboard	Total Waste of per day per bed (Kg)
				Yellow (Incinerable Waste)	Yellow Waste/ Day	Red (Infected Plastic Waste)	Red Waste/ Day	Sharps	Sharps/ Day	Glass				
1	January, 2020	2,19,568.50	1,78,866.00	13,677.50	**441.21**	20,948.35	**675.75**	267.20	8.62	5,809.45	187.40	40,702.50	1840	1.77
2	February, 2020	2,02,402.34	1,61,941.00	13,327.35	**475.98**	21,188.65	**756.74**	275.69	9.85	5,669.65	202.49	40,461.34	1662	1.74
3	March, 2020	1,90,110.84	1,54,437.00	12,096.65	**390.21**	18,380.85	**592.93**	212.84	6.87	4,983.50	160.76	35,673.84	1214	1.53
4	April, 2020	1,18,346.45	99,763.00	6,983.55	**232.79**	9,236.40	**307.88**	125.50	4.18	2,238.00	74.60	18,583.45	1552	0.99

Sn.	Month	Total Waste	General Waste	Bio-Medical Waste in Kg							Glass/Day	Total Bio-Medical Waste	Paper/ Cardboard	Total Waste of per day per bed (Kg)
				Yellow (Incinerable Waste)	Yellow Waste/ Day	Red (Infected Plastic Waste)	Red Waste/ Day	Sharps	Sharps/ Day	Glass				
5	May, 2020	1,12,156.30	93,057.00	8,501.50	**274.24**	8,278.20	**267.04**	109.50	3.53	2,210.10	71.29	19,099.30	1171	0.90
6	June, 2020	1,39,398.39	1,14,029.00	11,047.57	**368.25**	11,192.20	**373.07**	164.72	5.49	2,964.90	98.83	25,369.39	1412	1.13
7	July, 2020	1,53,120.95	1,27,836.00	10,964.25	**353.69**	11,230.30	**362.27**	119.90	3.87	2,970.50	95.82	25,284.95	1274	1.23
8	August, 2020	1,31,514.50	1,11,670.00	9,170.50	**295.82**	8,448.60	**272.54**	80.70	2.60	2,144.70	69.18	19,844.50	1015	1.06
9	September, 2020	1,19,637.22	1,01,402.00	7,026.43	**234.21**	8,739.91	**291.33**	110.78	3.69	2,358.10	78.60	18,235.22	1217	0.97
10	October, 2020	1,25,354.43	99,108.00	8,701.98	**280.71**	14,368.45	**463.50**	122.00	3.94	3,054.00	98.52	26,246.43	1345	1.01
11	November, 2020	1,32,861.39	1,04,388.00	8,813.21	**293.77**	16,043.06	**534.77**	145.82	4.86	3,471.30	115.71	28,473.39	1167	1.08
12	December, 2020	1,44,917.14	1,12,343.00	9,607.07	**309.91**	18,854.14	**608.20**	167.63	5.41	3,945.30	127.27	32,574.14	1197	1.17

Amount of Waste Produced KGMU UP, Lucknow ((Period: January, 2021 to December, 2021)

S.N.	Month	Total Waste	General Waste	Bio-Medical Waste in Kg								Total Bio-Medical Waste	Paper/ Cardboard	Total Waste of per day per bed (Kg)
				Yellow (Incinerable Waste)	Yellow Waste/ Day	Red (Infected Plastic Waste)	Red Waste/ Day	Sharps	Sharps/ Day	Glass	Glass/ Day			
1	January,2021	1,56,137.00	1,18,930.00	13,690.00	**441.61**	19,076.00	**615.35**	243.00	7.84	4,198.00	135.42	37,207.00	1375	1.26
2	February,2021	1,51,339.00	1,16,755.00	10,627.00	**379.54**	19,161.00	**684.32**	237.00	8.46	4,559.00	162.82	34,584.00	2415	1.34
3	March, 2021	1,80,161.00	1,40,377.00	13,263.00	**427.84**	21,109.00	**680.94**	250.00	8.06	5,162.00	166.52	39,784.00	1911	1.45
4	April, 2021	1,24,556.00	90,517.00	16,063.00	**535.43**	15,426.00	**514.20**	159.00	5.30	2,391.00	79.70	34,039.00	897	1.04
5	May, 2021	1,16,584.00	88,841.00	16,887.00	**544.74**	9,027.00	**291.19**	103.00	3.32	1,726.00	55.68	27,743.00	948	0.94
6	June, 2021	1,29,825.00	1,00,845.00	12,916.00	**430.53**	12,948.00	**431.60**	179.00	5.97	2,937.00	97.90	28,980.00	837	1.05
7	July, 2021	1,67,199.00	1,32,390.00	13,394.00	**432.06**	17,201.00	**554.87**	364.00	11.74	3,850.00	124.19	34,809.00	1654	1.35
8	August, 2021	1,73,295.00	1,38,292.00	12,121.00	**391.00**	17,951.00	**579.06**	194.00	6.26	4,737.00	152.81	35,003.00	1640	1.40
9	September, 2021	1,84,002.00	1,47,059.00	11,897.00	**396.57**	19,549.00	**651.63**	266.00	8.87	5,231.00	174.37	36,943.00	3557	1.49
10	October, 2021	1,72,428.00	1,38,622.00	9,478.00	**305.74**	18,579.00	**599.32**	260.00	8.39	5,489.00	177.06	33,806.00	1391	1.39
11	November, 2021	1,65,282.00	1,32,706.00	9,390.00	**313.00**	17,766.00	**592.20**	239.00	7.97	5,181.00	172.70	32,576.00	1251	1.34
12	December, 2021	1,81,308.00	1,44,605.00	11,566.00	**373.10**	19,347.00	**624.10**	215.00	6.94	5,575.00	179.84	36,703.00	1233	1.46

4.3. GREEN SPACE IN THE UNIVERSITY CAMPUS AND GREEN INITIATIVES.

KGM University has taken various steps to develop green campus at the university such as the university has done plantation at the university and geo tagging has been done for the plants and trees. Also, university has developed some gardens at different location of the university. The details of the gardens are as follows;

Locations of Lawn	Quantity	Locations of Lawn	Quantity
V.C. Office	3 Lawn	Parking Faculty	3 Lawn
Anatomy	2 Lawn	Vijay Laxmi Hostel	2 Lawn
Flowerpot V.C. office	3 Lawn	Nehru Hostel	1 Lawn
Pathology	2 Lawn	Resident Hostel	4 Lawn
S.P.M.	1 Lawn	New Guest House	2 Lawn
Fire Pump	1 Lawn	S.P. Hostel	5 Lawn
Biochemistry	1 Lawn	S.P. Ground	1 Lawn
P.H.I.	1 Lawn	convention Centre	2 Lawn
Forensic Department	1 Lawn	V.C. Aavash	3 Lawn
Nearby swine flu Lab	1 Lawn	C.V. Hostel New	2 Lawn
katahal baal	1 Lawn	C.V.Hostel	2 Lawn
U.G. Hostel	1 Lawn	Construction Department	1 Lawn
P.G. Hostel	1 Lawn	K.C.H.	3 Lawn
Kitchen (behind the shatabdi)	1 Lawn	B.M.W.	1 Lawn
Shatabdi keru 1	1 Lawn	Neurology	1 Lawn
New Dental	4 Lawn	New O.P.D.	4 Lawn
Children Department	1 Lawn	P.R.O.	1 Lawn

Locations of Lawn	Quantity	Locations of Lawn	Quantity
Faculty Aavash	3 Lawn	Flowerpot Gate No.2	1 Lawn
T.G. Hostel	5 Lawn	Budha Hostel	2 Lawn

4.4. AIR, NOISE & WATER QUALITY MONITORING SYSTEM

KGM university has conducted a detailed assessment of air and noise quality form CSIR- Indian Institute of toxicology research. The study has been carried out in pre monsoon 2019. According to the study the, the air quality is on lower side and suspended particulate matter on the air is higher than the recommended WHO guidelines. The noise level is on higher side as per the standard limits.

However, continuous monitoring for such parameters is not done at the KGM university.

4.5. ENERGY MANAGEMENT SYSTEM

The energy demand of the KGM university has been fulfilled majorly by the state electricity board. Rooftop solar power plant is also available at the facility. And for power back up, multiple DG sets of different capacity are installed at different locations. The brief details of the energy sources are as follows;

Sr. No.	Source of energy	Capacity/Demand
1	State Electricity Board (thermal Source)	13.27 MW
2	Rooftop Solar (renewable source)	1370 KW
3	DG Set (for power Back-up)	8713 KVA (Approx.)

The installed capacity of the rooftop solar power is 10% of the total demand of the university.

4.5.1. NON- RENEWABLE ENERGY SOURCES

Presently, Solar Photovoltaic (PV) systems are installed in the campus to generate electricity. Such a system enables the institute to reduce its dependence on the grid of State Electricity Board (SEB). Excess electricity from such a Solar PV plant can also be exported/wheeled to the SEB grid to earn the monetary incentives for the institute. The total generation of energy from solar cells were 1370 KW**.**

4.5.2. THERMAL ENERGY CONSUMPTON

Total twenty-three (23) power incomer from state electricity board are supplying power to the KGM university. Twenty (22) are at 11kV voltage level and one is at 33kV voltage level. The details of the energy consumption through state electricity board are as follows;

Power Consumption	
Source Power	Madhyanchal Vidyut Vitran Nigam Ltd (33 KV) & (11KV)
Contract Demand	13.27 MW

The details of the incomers are provided as below.

S. N.	Department/ Place	Connection No./ Name	Account No.	Date of Connection	Tariff Type	Connected Load (kVA)	Name of the Buildings serving by the connection
1	New Mortuary substation	678528 Registrar, KGMU	3747481000	1/1/2001	HV-I	223	Sardar Patel Hostel/Resident Hostel, Physiology Department, Bio Chemistry department, SPM
2	C.T.V.S Department	700218 Registrar, KGMU	9747481000	8/4/2011	HV-I	445	Complete CTVS Department
3	Hospital Substation	71595 Registrar, KGMU	8547481000	1/1/2001	HV-I	1137	Radiotherapy department, Radio diagnosis department, Main hospital Building, Old OPD, Pharmacology Department, Old Neurology Building, Plastic surgery department, Medicine ward & M.R.I, C.T Scan, Ophthalmic
4	New Dental Extension	703688 Registrar, KGMU	5134370261	28/11/2012	HV-I	737	Complete new dental Extension building
5	Cobalt substation	613917 Registrar, KGMU	9547481000	1/1/2001	HV-I	445	Medicine department, Plastic surgery department, surgery department, I.D.H. building, old neurology, Paediatric department
6	Psychiatric department	00434 Registrar, KGMU	1747481000	1/1/2001	HV-I	158	Psychiatric department, Trauma emergency room, holding screening area & Geriatric mental
7	Queen marry Hospital	30339 Registrar, KGMU	7547481000	1/1/2001	HV-I	411	Complete Queen marry Hospital & Old LRH and NCR hostel.

S. N.	Department/ Place	Connection No./ Name	Account No.	Date of Connection	Tariff Type	Connected Load (kVA)	Name of the Buildings serving by the connection
8	QMH (New 100 Beaded)	4540285915 Registrar, KGMU	4540285915	27/04/2019	HV-I	333.33	Complete 100 Beaded Hospital (QMH)
9	Trauma Centre	689414 Registrar, KGMU	5747481000	1/1/2004	HV-I	540	Trauma Centre (Ground floor to 3rd Floor)
10	Old Mortuary substation	005699 Registrar, KGMU	7747481000	1/1/2001	HV-I	1087	Pathology department, Microbiology department, New old VL Girls Hostel, DK Hostel, VC Office
11	Teaching Block (Kalam)	703712 Registrar, KGMU	9753334424	15/12/2014		2632	Complete Teaching Block, Hostel etc.
12	Old Dental building (Dental Science University)	678537 Registrar, KGMU	1214770000	15/07/2005	HV-I	45	Complete old dental faculty building
13	New OPD Block	703687 Registrar, KGMU	4697779403	25/11/2012	HV-I	698	Complete New OPD building
14	Cancer unit	678442 Registrar. KGMU	4747481000	1/1/2001	HV-I	112	Complete Cancer Unit (QMH)
15	Type-5 Faculty Building (J. N)	7200191928 Registrar, KGMU	7200191928	16/02/2005	LMV-I	444.44	Complete Faculty building A & B Block
16	Old Dental Building	566149 Registrar, KGMU	6747481000	1/1/2003	HV-I	445	Complete Old dental faculty building
17	Gautam Buddha	678569 Registrar, KGMU	1133332000	23/05/2008	HV-I	667	Complete Gautam buddha Hostel block

S. N.	Department/ Place	Connection No./ Name	Account No.	Date of Connection	Tariff Type	Connected Load (kVA)	Name of the Buildings serving by the connection
18	Shatabdi Hospital.	678594 Registrar, KGMU	1647481000	29/04/2008	HV-I	1334	Shatabdi Hospital Phase-1, New Rain Basera, V.C Residence
19	Cardiology Department	577925 Registrar, KGMU	2747481000	1/1/2001	HV-I	223	Complete Cardiology Department
20	T.G. Hostel	9202 Registrar, KGMU	7077481000	1/1/2001	HV-I	198	Faculty & employees Residence
21	T.G. Hostel Residential	100057 Registrar, KGMU	6357245033	15/12/2014	LMV-I	334	Nurses Hostel.
22	RALC Building (Artificial)	86966 Registrar, KGMU	2157481000	1/1/2001	HV-I	334	Old Orthopaedic, DPMR, Rheumatology (Proposed Covid-19)
23	Employees Quarter Type	4042748045 Registrar, KGMU	4042748045	16/02/2015	LMV-I	78	Type-1 Employees Quarter Near RALC
24	Employees Residence Amrapali	T/C No. 94/2015-16 Registrar, KGMU	not available	not available	NA	0	Employees Residence block-A & B
Total						**13060.77**	

4.5.3. DIESEL GENERATORS & DIESEL CONSUMPTION

Diesel consumption at the KGM university is through Diesel generator sets only and those are used as a backup of the power supply. Total sixty-three (63) diesel generator are installed at the different location of the KGM university premise. The Details of the DG set is as follows;

S. N.	Location of DG sets	KVA	Make	Number of DG
1	RALC Campus, DPMR Dept., Orthopaedic Dept., Rheumatology DG `	250 KVA	Greaves	2
		100 KVA	Kirloskar	1
		500 KVA	Supernova	1
2	Gandhi Ward	320 KVA	Cummins	2
		60 KVA	Kirloskar	1
3	PRO Office	500 KVA	Cummins	1
		320 KVA	Cummins	3
4	New Dental Dept. Old Dental Dept.	320 KVA	Cummins	1
		125 KVA	Kirloskar	1
		61 KVA	Kirloskar	2
5	Geriatric Mental Dept., Mental Dept., Adolescent Psychic	100 KVA	Kirloskar	2
		62.5 KVA	Cummins	1
		125 KVA	Jackson	1
6	Trauma Centre	250 KVA	Cummins	3
		125 KVA	Cummins	1
7	CTVS Dept.	320 KVA	Kirloskar	1
		125 KVA	Kirloskar	1

S. N.	Location of DG sets	KVA	Make	Number of DG
8	Queen Mary Dept.	250 KVA	Greaves	1
		250 KVA	Cummins	1
		125 KVA	Kirloskar	2
9	Microbiology, Virology TV Lab	250 KVA	Cummins	2
		250 KVA	Kirloskar	1
		125 KVA	Cummins	1
10	Pathology Dept.	200 KVA	Greaves	1
		45 KVA	Kirloskar	1
11	PHI Bhawan	62.5 KVA	Kirloskar	1
12	Library & Administrative Building, RH hostel, Marchery, New guest house, Nehru hostel.	200 KVA	Cummins	1
		20 KVA	Kirloskar	1
		50 KVA	Cummins	1
		45 KVA	Kirloskar	1
		7.5 KVA	Kirloskar	1
13	TG Hostel	125 KVA	Kirloskar	1
		125 KVA	Kirloskar	1
14	Shatabdi Phase-1	500 KVA	Kirloskar	1
		500 KVA	Cummins	1
		10 KVA	Kirloskar	1
15	Shatabdi Phase-2	500 KVA	Cummins	3

S. N.	Location of DG sets	KVA	Make	Number of DG
16	Lary Cardiology	250 KVA	Greaves	2
		125 KVA	Cummins	1
17	New OPD	250 KVA	Cummins	2
18	SPM Dept.	62.5 KVA	Kirloskar	1
19	Faculty Accommodation	62.5 KVA	Greaves	2
20	IT Cell	30 KVA	Kirloskar	1
21	Kalam Centre	320 KVA	Cummins	2
22	Advance Research	45 KVA	Kirloskar	1
		15 KVA	Kirloskar	1
23	Burn Unit Plastic Surgery Dept.	250 KVA	Kirloskar	1

The diesel consumption details for the financial year 2022-23 is as follows;

Month	Diesel Consumption (Liters)
Apr-21	2,570.0
May-21	6,240.0
Jun-21	5,660.0
Jul-21	4,310.0
Aug-21	900.0
Sep-21	-
Oct-21	4,540.0

Month	Diesel Consumption (Liters)
Nov-21	3,900.0
Dec-21	3,190.0
Jan-22	4,000.0
Feb-22	2,700.0
Mar-22	2,600.0
Total consumption	**40,610.0**

4.6. CARBON FOOTPRINTS

A carbon footprint is a total greenhouse gas (GHG) emissions caused directly and indirectly by a person, organisation, event or product and is expressed as a Carbon Dioxide equivalent (C02-e)

The KGMU is highly conscious regarding the energy consumption within the campus. This is testimony to the fact that it has executed a number of energy efficiency as well as renewable energy projects to reduce the energy consumption as well as dependency on the fossil fuel-based energy sources.

Some of the energy conservation and renewable energy measures as were executed: -

- The management replaces regular 250 W sodium lights with 120 W LED lights. Around 600 such LED lights installed for the indoor areas of the hospital, replacing the old 150 lights and addition of remaining 450 new lights. The team also replaces 12 High-mast lights of 850 W with those of 250 W lights, in the outdoor areas.
- Installation of APFC panels for Power Factor improvement and thereby KVAh Consumption reduction.
- Use of Concentrated Solar Thermal system to provide steam for the cooking in lieu of LPG
- Installation of rooftop Solar PV power plants of 1370 kW.
- Plantation activities around the premise and geo tagging of the plant at the university premise.

The carbon footprint of the hospital is as below based on the present energy consumption: -

Items	Units / Year	Quantity	Emission Factor	kg of CO_2-e	Remarks
Electricity Consumption	kWh	26282700	0.85	22340295	From energy audit report
Petrol	Liters	250000	2.296	574000	Approx. (considering 2000 cars in a day in university campus)
Diesel	Liters	40610	2.653	107738.3	From energy audit report
LPG	kg	168891	2.983	503801.9	From energy audit report
Carbon Footprint (t CO_2-e)	**23525.84**				

There should be a regular effort to further improve on the carbon footprint as mentioned above. This is possible by undertaking various energy conservation and renewable energy measures as mentioned in various chapters in this report. Besides taking such measures, the hospital also needs to undertake a regular maintenance of the already installed systems in operation for its best result expected.

4.7. TRAINING, COMMINICATION & AWARENESS

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of various establishments. It aims to analyze environmental practices within and outside of the concerned sites, which will have an impact on the eco-friendly ambience.

At KGM University, classroom lectures, field visits, presentations, case studies, group exercises, assignments and discussions are required to provide training and awareness at the campus.

5. CONCLUSIONS & RECOMMENDATIONS

Green Audit is the most efficient way to identify the strength and weakness of environmentally sustainable practices and to find a way to solve problem. Green Audit is one kind of professional approach towards a responsible way in utilising economic, financial, social and environmental resources.

At KGM university, there is scope for further improvement, particularly in relation to waste water management, energy and water management. Also, action needs to be taken for monitoring air, noise and water quality at the university premise. The suggestions are as follows;

- Digital water flow meter shall be installed at each borewell at the university and hostel campus to calculate the daily water consumption of the university. Along with this, it is recommended to install piezometers to monitor the ground water level, one piezometer at university campus would be sufficient.
- During the audit, 6636 KLD (approx.) of daily water consumption has been calculated on the basis of running hour and discharge capacity of the pump. It is recommended to conduct a detail water audit for the facility as the water consumption is on higher side and steps shall be taken to reduce the water consumption at the university. Also, it is suggested to measure the annual recharge potential through rain water harvesting structures.
- Total 1370 KW of rooftop solar panels is installed at the university; which is 10% of the total power demand of the university. Steps shall be taken to increase the solar power (renewable power sources) to achieve usage of maximum green energy for the university campus. This would help to reduce the consumption of the diesel at the site and thus will reduce the carbon emission.
- Petrol and diesel operated vehicles are being used at the university campus for commuting from one area to other. KGM university can take some steps to introduce the electric carts or e-rikshaws at the university premise to reduce the carbon footprints of the university.
- KGM university shall develop a system for monitoring the air and noise pollution at the university and these parameters shall be monitored daily at the university campus.
- The waste water of the entire university shall be treated. For this purpose, only one STP unit of 500KLD is installed at the university campus. However, university is working on the other STP units.
- M/s Synergy Waste Management (P) Ltd. is handling the waste of the KGM university. The total maximum quantity permitted to the vendor is 1103.36 kg/day of yellow type of waste, 68.18 kg/day of red type of waste and 12.17 kg/day of white type of waste. However, as per the record, the average waste generated in year 2019 was 325.45 kg of yellow waste per day and 663.48 kg of red waste per day. In year 2020; 329.23 kg of yellow waste per day and 458.83 kg of red waste per day was generated. In year 2021; 414.26 kg of yellow waste per day and 568.23 kg of red waste per day was generated. Hence, it is recommended to review the daily quantity of the waste permitted for handling to the vendor and action shall be taken accordingly.

6. ANNEXURES

Special Recognition award

Local media recognitions

KGMU gets its first STP, hailed by guv

Times News Network

Lucknow: Governor Anandiben Patel inaugurated the first effluent treatment plant (ETP) - sewage treatment plant (STP) of King George's Medical University (KGMU) on Tuesday in continuation with the World Environment Day celebrations.

Addressing the gathering, she spoke on the importance of protecting the environment by not just afforestation but also conservation of water and segregation and treatment of waste.

She lauded the medical university for taking steps towards establishment of an STP and biomedical waste management systems.

The governor also stressed on the need to keep the premises clean and said that it is everyone's responsibility to keep their workplaces as clean as their homes.

She said that if all employees, staff and students of the university remain aware of their responsibility towards this campus and environment, it would not remain just the vice chancellor's (VC) job to apprise everyone about cleanliness.

KGMU vice chancellor Lt Gen (retd) Dr Bipin Puri lauded the role of the university's environment department in streamlining biomedical waste management besides a host of other activities including improvement of patients' diet, kitchen services, vermi/food composting unit, utilizing fallen leaves and leftover vegetables and fruits, pest control, campus cleanliness, utilizing renewable energy including installation of solar panels and parabolas, tree plantation etc.

प्लास्टिक के प्रयोग से बचें: राज्यपाल

नसीहत

लखनऊ, वरिष्ठ संवाददाता। केजीएमयू मरीजों का इलाज संग पर्यावरण का संरक्षण भी कर रहा है। इसमें सभी के सहयोग की जरूरत है। बिना सबकी सहभागिता के पर्यावरण का संरक्षण मुमकिन नहीं है। ये बातें राज्यपाल आनंदी बेन पटेल ने कहीं।

मंगलवार को सोशोटिफिक कन्वेंशन सेंटर में राज्यपाल ने कहा कि पर्यावरण की रक्षा के लिए अधिक पौधे लगाएं। प्रत्येक व्यक्ति को पौधा रोपना चाहिए। पीपल, बरगद, तुलसी समेत अन्य पौधे लगाने चाहिए। प्रदूषण को कम करने की दिशा में प्रयास करनी चाहिए। प्लास्टिक के प्रयोग से बचना चाहिए। राज्यपाल ने केजीएमयू में पहले सीवरेज ट्रीटमेंट प्लांट का शुभारंभ किया। डिप्टी सीएम ब्रजेश पाठक ने कहा कि केजीएमयू मरीजों की सेहतर इलाज मुहैया करा रहा है।

केजीएमयू में मंगलवार को पर्यावरण संरक्षण कार्यक्रम में राज्यपाल शामिल हुईं।

एकेटीयू में ग्रीन-क्लीन संस्थान बनाने पर जोर

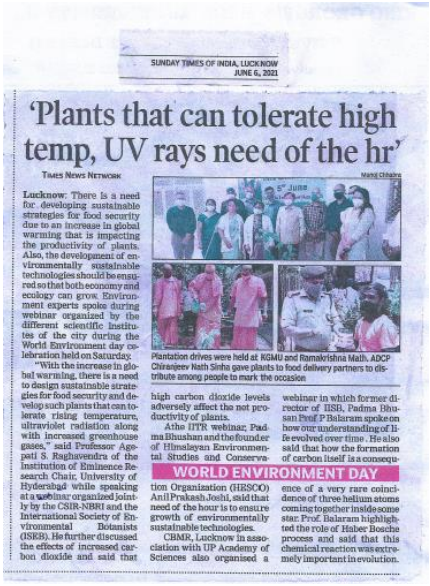
लखनऊ। बढ़ते प्रदूषण और पर्यावरण संकट को देखते हुए डॉ एपीजे अब्दुल कलाम प्राविधिक विश्वविद्यालय ने अपने संबद्ध संस्थानों को ग्रीन एवं क्लीन कैंपस बनाने की पहल की है। इस दिशा में कदम बढ़ाते हुए विश्वविद्यालय ने सभी संस्थानों से उनके कैंपस से जुड़ी जानकारी मांगी है। कुलपति प्रो. प्रदीप कुमार मिश्र ने सभी संस्थानों को मांगी गयी सूचना 15 जून तक उपलब्ध कराने को कहा गया है। कुलपति ने कहा कि वर्तमान में सबसे ज्यादा समस्या पानी को लेकर ही रही है। गर्मी में तो हालात यह से बदतर हो जा रहे हैं। इसके पीछे सबसे बड़ा कारण है जलस्तर का लगातार कम होना। धरती का पानी यूं ही बर्बाद हो जा रहा है।

राष्ट्रीय सहारा

पर्यावरण संरक्षण में सबकी सहभागिता जरूरी : राज्यपाल

लखनऊ (एसएनबी)। किंग जार्ज चिकित्सा विश्वविद्यालय मरीजों का इलाज सह पर्यावरण का संरक्षण भी कर रहा है। इसमें अपने सब के सहयोग की आवश्यकता है। बिना सबकी सहभागिता के पर्यावरण का संरक्षण नहीं हो सकेगा। यह बात राज्यपाल आनंदी बेन पटेल ने मंगलवार को पर्यावरण दिवस के अवसर पर साइंटिफिक कन्वेंशन सेंटर में कार्यक्रम को संबोधित करते हुए कहीं। इस मौके पर राज्यपाल ने केजीएमयू का पहला सीवरेज ट्रीटमेंट प्लांट (एसटीपी) का शुभारंभ किया। राज्यपाल आनंदीबेन पटेल ने कहा कि पर्यावरण की रक्षा के लिए अधिक से अधिक पौधे लगाएं।

डिप्टी सीएम ब्रजेश पाठक ने कहा कि केजीएमयू में मरीजों को बेहतर इलाज मिल रहा है। मरीजों के इलाज के लिए तरफ नहीं भटकना चाहिए। मरीज व उनके परिजन बड़ी उम्मीद लेकर इलाज कराने के लिए के केजीएमयू पहुंचते हैं। उन्होंने कहा कि पर्यावरण को बचाने की दिशा में भी आज कदम उठाए। केजीएमयू मरीजों को प्लास्टिक के बजाए स्टील की थाली में भोजन उपलब्ध कराया जा रहा है। इससे मरीजों को प्लास्टिक से दूर रखने की कोशिश सफल होगी। उन्होंने कहा कि प्रस्तावित जहां होंगे बीमारी का खतरा नहीं होगा। साथ संबंधी बीमारी कम होंगे। प्रदूषण का प्रभाव कम होगा। कार्यक्रम में केजीएमयू कुलपति डा. विपिन पुरी ने कहा कि लगातार पर्यावरण संरक्षण के लिए कार्य कर रहा है। कार्यक्रम में केजीएमयू परिसर में पर्यावरण के लिए किये जा रहे कार्यों का जानकारी दी गई। कार्यक्रम में प्रतिभागी छात्रों को भी सम्मानित किया गया। कार्यक्रम में केजीएमयू के वरिष्ठ डाक्टर सहित अन्य गणमान्य लोग मौजूद रहे।



SUNDAY TIMES OF INDIA, LUCKNOW
JUNE 6, 2021

'Plants that can tolerate high temp, UV rays need of the hr'

Times News Network

Lucknow: There is a need for developing sustainable strategies for food security due to an increase in global warming that is impacting the productivity of plants. Also, the development of environmentally sustainable technologies should be engraved so that both economy and ecology can grow. Environment experts spoke during webinar organized by the different scientific institutes of the city during the World Environment day celebration held on Saturday.

"With the increase in global warming, there is a need to design sustainable strategies for food security and develop such plants that can tolerate rising temperature, ultraviolet radiation along with increased greenhouse gases," said Professor Agepati S. Raghavendra of the Institution of Eminence Research Chair, University of Hyderabad while speaking at a webinar organized Jointly by the CSIR-NBRI and the International Society of Environmental Botanists (ISEB). He further discussed the effects of increased carbon dioxide and said that high carbon dioxide levels adversely affect the net productivity of plants.

Asthe ITPR webinar, Padma Bhushan and the founder of Himalayan Environmental Studies and Conservation Organization (HESCO) Anil Prakash Joshi, said that need of the hour is to ensure growth of environmentally sustainable technologies.

CBMR, Lucknow in association with UP Academy of Sciences also organised a webinar in which former director of IISB, Padma Bhusan Prof P Balaram spoke on how our understanding of life evolved over time. He also said that how the formation of carbon itself is a consequence of a very rare coincidence of three helium atoms coming together inside some star. Prof. Balaram highlighted the role of Huber Bosche process and said that this chemical reaction was extremely important in evolution.

Plantation drives were held at KGMU and Ramakrishna Math. ADCP Chiranjeev Nath Sinha gave plants to food delivery partners to distribute among people to mark the occasion

WORLD ENVIRONMENT DAY

दैनिक जागरण 4
लखनऊ, 6 जून 2021
www.jagran.com

केजीएमयू में स्टील की प्लेट में मिलेगा मरीजों को खाना

जास. लखनऊ : केजीएमयू में अब मरीजों को फाइबर नहीं बल्कि स्टील की थाली में खाना मिलेगा। यहां प्लेट धोने के लिए खास तरह की मशीन लगाई गई है। विश्व पर्यावरण दिवस पर केजीएमयू (किंग जार्ज चिकित्सा विश्वविद्यालय) कुलपति ने इसकी शुरुआत की। कुलपति डा.विपिन पुरी ने कहा कि अभी तक फाइबर की प्लेट में मरीजों को भोजन दिया जा रहा था। इन प्लेटों को नष्ट करना बड़ी चुनौती था। उन्होंने कहा कि पर्यावरण संरक्षण की दिशा में एक पहलकदमी है।

पौधे रोपे। लोहिया संस्थान में सिटिजन हेल्थ एंड रिसर्च सोसाइटी की ओर से पौधारोपण कार्यक्रम हुआ। फैजाबाद रोड स्थित पार्श्वनाथ कालोनी में पौधे रोपे गए। डा. कपिल, डा. अभिषेक, डा. रोहित, डा. शशांक एवं कालोनी के अन्य लोगों ने नीम, पीपल आदि के पौधे रोपे।

आयुर्वेद, होम्योपैथी व यूनानी फार्मासिस्ट तथा बेरोजगार नर्सेज ने मिलकर आयुष फार्मासिस्ट संघ के अस्पतालों में पौधे रोपे। राजकीय अश्वचिकित्सक यूनानी फार्मासिस्ट संघ के प्रदेश अध्यक्ष विजयपाल

4 दैनिक जागरण लखनऊ, 22 जुलाई 2019

लखनऊ जागरण www.jagran.com

पॉलीथिन के 'रोग' से भी मुक्ति दिला रहे डॉक्टर

संदीप पांडेय • लखनऊ

केजीएमयू चिकित्सकों की मुहिम से थम रहा पॉलीथिन का उपयोग, पुरानी साड़ियों से बनवा रहे थैले

केजीएमयू में साड़ी से तैयार थैलों के बारे में जानकारी देतीं डॉ. कीर्ति सक्सेना और डॉ. परवेज

किंग जार्ज मेडिकल यूनिवर्सिटी (केजीएमयू) के डॉक्टर मरीजों के साथ अब पर्यावरण की भी सेहत सुधारने में जुट गए हैं। करीब छह माह पहले दो डॉक्टरों ने मुहिम छेड़ी। इसको सराहते हुए कई डॉक्टर अब उनके हमराह बन चुके हैं। ये चिकित्सक घर की पुरानी साड़ियों से आकर्षक थैले बनवा रहे हैं। इसे स्टाफ एवं तीमारदारों को देकर पॉलीथिन का इस्तेमाल न करने के लिए जागरूक किया जा रहा है।

कैंसर विभाग में तैनात डॉ. कीर्ति सक्सेना और एनेस्थेटिस्ट डॉ. परवेज करीब छह माह पूर्व एक दिन पॉलीथिन से होने वाली जानलेवा बीमारियों पर बात कर रहे थे। इसी में उन्हें परिसर को पॉलीथिन से मुक्ति दिलाने की युक्ति सूझी। दोनों ने अपने घर की पुरानी साड़ियां मंगवाईं और उनसे थैले बनवाकर पॉलीथिन के सफाए की मुहिम शुरू कर दी। हल्के और जेब में रखने लायक ये थैले लोगों को खूब भाए। धीरे-धीरे इस अभियान से डॉ. अनुपम वाखलू, डॉ. एसपी जायसवार, डॉ. रीमा कुमारी, डॉ. प्रज्ञा और डॉ. हिमांशु जुड़ते गए।

इस तरह यह कारवां आगे बढ़ता जा रहा है। अब तक इस मुहिम के तहत करीब 1000 थैले बांटे जा चुके हैं। डॉक्टरों की टीम ने मुहिम को आगे बढ़ाते हुए केजीएमयू प्रशासन को पत्र लिखकर मांग की है कि कैंपस में होने वाली कार्यशालाओं में उन्हें स्टाल लगाने की अनुमति दी जाए।

बीमार बना रहा पॉलीथिन

पॉलीथिन पर्यावरण को ही नहीं इंसानों को भी बीमार बना रही है। डॉ. परवेज के मुताबिक, पॉलीथिन के जहरीले तत्व मृदा के साथ भूगर्भ जल को भी दूषित कर रहे हैं। इसे जलाने पर वायु प्रदूषण हो ही रहा है। पॉलीथिन से होने वाला प्रदूषण इंसानों में फेफड़े का कैंसर, श्वसन रोग, त्वचा संबंधी बीमारियां, दिल और चमड़े से जुड़ी स्वास्थ्य समस्याएं पैदा कर रहा है।

पर्यावरण संरक्षण

एक साड़ी के बदले लें दो थैले

केजीएमयू के डॉक्टरों की टीम अपनी इस अभिनव मुहिम से जन-जन को जोड़ना चाहती है। इसके लिए संस्थान के डिपार्टमेंट ऑफ इंवायरमेंट में साड़ी संग्रह केंद्र बनाया गया है। डॉ. कीर्ति के मुताबिक, किसी भी कार्यदिवस के दौरान यहां आकर कोई भी व्यक्ति पुरानी साड़ी दान कर सकता है। एक साड़ी के बदले में उन्हें दो थैले भेंट किए जाएंगे।

सेहतमंद कल का ड्रीम

इस मुहिम में जुटे चिकित्सकों का समय ही नहीं संसाधन भी इसमें खर्च हो रहा है। एक बड़े झोले के निर्माण में 10 रुपये का खर्च आ रहा है। यह खर्च डॉक्टरों की टीम आपसी सहयोग से उठाती है। साड़ी का कपड़ा बर्बाद न हो, इसके लिए लिफाफे जितने बड़े आकर्षक थैले भी बनवाए जाते हैं। परिसर को पॉलीथिन मुक्त बनाने की यह मुहिम बाहर भी असर डाल रही है।

न खरीदें पारा वाला थर्मामीटर, फूटने से जहरीला हो सकता है घर का वातावरण

केजीएमयू में स्वच्छता और मेडिकल कचरा प्रबंधन पर कार्यशाला में विशेषज्ञों ने दी सलाह

अमर उजाला ब्यूरो

लखनऊ। घर में पारा वाला थर्मामीटर रखना खतरनाक है। इसके टूट जाने से पूरे घर का वातावरण जहरीला हो सकता है। यही वजह है कि अब घर और अस्पताल में मर्करी वाले थर्मामीटर और ब्लड प्रेशर मशीन रखने से मना किया जा रहा है। ये बातें प्रो. अनुपम वाखलू ने बताईं।

वह शनिवार को केजीएमयू के कन्वेंशन सेंटर में स्वच्छता और मेडिकल कचरा प्रबंधन पर चल रही कार्यशाला के दूसरे दिन संबोधित कर रहे थे। इंडियन सोसाइटी ऑफ हॉस्पिटल वेस्ट मैनेजमेंट की 18वीं वार्षिक कार्यशाला के आयोजन सचिव प्रो. वाखलू ने बताया कि पारा के दुष्प्रभाव को देखते हुए अब डेंटल विभाग ने दांतों की फीलिंग में इसका प्रयोग बंद कर दिया है। इससे पहले कार्यक्रम की शुरुआत डॉ. अनुपम वाखलू, उप सचिव डॉ. परवेज, डॉ. कीर्ति श्रीवास्तव, डॉ. डी हिमांशु, साउथ ईस्ट एशिया रीजन के प्रमुख डॉ. अलेक्जेंडर ने की। डॉ. कीर्ति श्रीवास्तव ने केजीएमयू में अपनाई जा रही तकनीक के बारे में बताया। यूनाइटेड किंगडम की रुथ स्टिंगर ने अस्पताली कूड़े के वैश्विक दुष्प्रभावों से निपटने की रणनीति पर चर्चा की। बंगलूरु से आईं डॉ. सुमन ने अपना वेस्ट मैनेजमेंट मॉडल प्रस्तुत किया।

थर्मामीटर टूटे तो खोल दें घर के खिड़की-दरवाजे

घरे की एक बूंद पूरे तालाब या कुंड के पानी को जहरीला बना सकती है। इसके शरीर में जाने की वजह से न्यूरो, किडनी संबंधी बीमारियों का खतरा रहता है। घर में रखा थर्मामीटर टूट जाए तो तत्काल खिड़की व दरवाजे खोल दें। वैक्युम क्लीनर से इसे साफ न करें। इसे दस्ताने पहनकर मोटे पत्ते या एक्सरे प्लेट से बटोरना चाहिए। जमीन पर गिरे पारे को सीरिंज की मदद से किसी शीशी में डाल दें। पारे से भरी शीशी को न पानी में फेंकें और न ही मिट्टी में दबाएं। इसे किसी लोहे के बक्से में पैक करके रखें या केजीएमयू में बने मर्करी सेंटर में रखवा दें।
-प्रो. अनुपम वाखलू, केजीएमयू

निडल से संक्रमण का खतरा

इंजेक्शन की निडल से संक्रमण का खतरा रहता है। नर्स घर पर इंजेक्शन लगाती है तो उसे कूड़ेदान में न डालें, बल्कि उसका निस्तारण अलग से करें। यह इंजेक्शन कूड़ा उठाने वाले को संक्रमित कर सकता है। इसी तरह चिकित्साकर्मियों को भी निडल और ऑपरेशन के समय प्रयुक्त होने वाले उपकरणों को अलग-अलग रखना चाहिए।
-डॉ. डी हिमांशु, केजीएमयू

प्लांट को सौंपें बायो वेस्ट

कूड़े के निस्तारण के लिए केजीएमयू सहित अन्य स्थानों पर प्लांट लगे हैं। वहां कूड़ा भेजकर आर्थिक लाभ भी कमाया जा सकता है। अस्पताल चाहें तो निडल को किसी स्टील कंपनी को सौंप सकते हैं। निडल के साथ ग्लूकोज की बोतलें, एक्सपायरी दवाएं, दवाओं के रैपर को भी निस्तारण केंद्रों को सौंपा जा सकता है। -डॉ. परवेज अहमद, केजीएमयू

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मेडिकल कचरे का सही निस्तारण करना जरूरी

केजीएमयू में सारी मेडिकल वेस्ट पर जागरूकता कार्यक्रम

लखनऊ। पैरामेडिकल साइंसेज के डीन प्रो. विनोद जैन ने कहा कि मरीजों की संख्या बढ़ने के साथ ही मेडिकल वेस्ट की मात्रा भी बढ़ रही है। इसे ठीक से निस्तारित नहीं किया गया तो पर्यावरण प्रदूषण बढ़ेगा। बीमारियां फैलने वाले कचरे को सही तरीके से निस्तारित किया जाना जरूरी है। वह मंगलवार को केजीएमयू में एडवांस स्किल डवलपमेंट के तहत पैरामेडिकल छात्रों के लिए आयोजित बायो मेडिकल वेस्ट जागरूकता कार्यक्रम को संबोधित कर रहे थे। उन्होंने बताया कि मेडिकल कचरा भले ही एक अस्पताल के लिए मामूली कचरा हो लेकिन ऐसे कचरे से इन्फेक्शन, एचआईवी, महामारी, हेपेटाइटिस जैसी बीमारियां होने का डर बना रहता है। इस दौरान डॉ. कीर्ति श्रीवास्तव व डॉ. डी. हिमांशु भी मौजूद थे। ब्यूरो