ख्वाजा मुईनुद्दीन चिश्ती भाषा विश्वविद्यालय, लखनऊ
Khwaja Moinuddin Chishti Language University, Lucknow

Environmental Audit Report

2022-2023

On Dated: 05th to 06th June 2023

AUDITED BY

Er. Ashutosh Kumar Srivastava (B.E, Civil Engineering, 1986) & Team

(Assessor IAS, Assessor NABCB/QCI, Under Ministry of Commerce, Certified Lead Auditor ISO 9001, 14001, 22001, 45001, 50001, Expert in Climate Change, Waste Management, Facilitator CII-IGBC, IGBC AP, ASSOCHAM-GEM-CP, GRI Professional)

G.C. CONSULTANCY SERVICES

(ISO 9001, 14001, 45001 Certified, MSME & NSIC Registered Company)

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LANGUAGE UNIVERSITY,
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ACKNOWLEDGEMENT

M/s G C Consultancy Services, audit team grateful to **Hon'ble Vice Chancellor Prof. N.B. Singh** of Khwaja Moinuddin Chishti Language University, Lucknow. for assigning this important work of Environment audit. We appreciate the co-operation to our team for completion of study.

Our special thanks to:

1.	*Prof. N.B. Singh*	*Hon'ble Vice Chancellor* *Khwaja Moinuddin Chishti* *Language University, Lucknow.*
2.	*We are also thankful to Dr. Nalini Mishra (Department of Education), Prof. Fakhre Alam (Department of Urdu), Prof. Neeraj Shukla (Department of Commerce), Dr. Bheem Sonkar (Department of Applied Science and Humanities), Prof. Kaushlesh Kumar Shah (Department of Civil Engineering) and Dr. Syed Asghar Husain Rizvi (Department of Mechanical Engineering) for sparing their precious time and guiding us on various aspects of university development & achievements.* *Thanks a lot, to you all, we learnt a lot from you. This will guide us also for our future works and guiding us on various aspects of college development & achievements.*	
3.	*Our special compliments to **Prof. (Dr.) Nalini Mishra** (Department of Education), who was continuously with us during the audit and her efforts of coordination with other departments in collecting the data & helping us compiling them, cannot be forgotten.*	
4.	*We are also thankful to the staff members for giving us supports & valuable input by involving themselves while collecting the data and conducting field tests and measurements.* *We also extend our thankfulness to canteen staffs & Manager who gave us a five-star welcome and served a highly hygienic and hot food stuffs. The canteen was well sanitized and food stuff was also of commendable quality.*	

Date: 10th Jun 2023

Authorised Signatory

Place: Gorakhpur (U.P)

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Disclaimer

M/s G C Consultancy Services, Environment Audit Team has prepared this report for Khwaja Moinuddin Chishti Language University, Lucknow (U.P), based on input data submitted by representatives of university complemented with the best judgment capacity of the expert team and samples collected by our team in presence of University team members.

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

It is further informed that the conclusions are arrived 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 fromany use of the information, statements, or forecasts in the report.

If Khwaja Moinuddin Chishti Language University, Lucknow. Authorities wish to distribute copies of this report external to anyorganization, and then all pages must be included.

M/s G C Consultancy Services, its staff and agents shall keep confidential all information relating to University 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 M/s G C Consultancy Services staff, agents and accreditation bodies have signed individual confidentiality undertakings and will only receive confidential information on a 'need to know' basis.

Ashutosh Kumar Srivastava
(Assessor NABCB/QCI, Assessor IAS, GBC AP, ASSOCHAMGEMCP, Facilitator CIIIGBC, Lead Auditor ISO9001, ISO14001, ISO22000, ISO45001, ISO50001, ISO 17020, ILAC P15, GRI certified Professional 2021 updated)

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Context and Concept

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 a legal consent and must submit an environmental reporter 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 Environment Audit Report. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the sustainable environment.

In view of the NAAC circular regarding environment auditing, the University 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' area, so 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. Al though 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 with the aim of safeguarding the environment and natural resources in its operations/projects."

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

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CERTIFICATE

This is to certify that a detailed **"Environment Audit"** for Khwaja Moinuddin Chishti Language University, Lucknow (U.P) has been conducted at its campus for the academic year 2022-2023 on **05th & 6th of June 2023**. The audits were conducted in accordance with the applicable standards prescribed by the U.P. State Pollution Control Board, Central Pollution Control Board (CPCB), New Delhi, and the Ministry of Environment, Forest, and Climate Change, (MoEF&CC), New Delhi. The audit involves Water, Air, Wastewater, solid waste, plastic waste, and sewage waste etc., and given an 'Environmental Management Plan' (EMP), which the University may follow to minimize the impact on the institutional working framework. In an opinion and to the best of our information and according to the information given to us, said Environment and it gives a true and fair view in conform, it with environmental audit in principles accepted in India.

Date: 10th June 2023

Place: Gorakhpur

Authorized Signatory & Seal

G C Consultancy Service, Gorakhpur

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Preface

Lucknow, the capital city of Uttar Pradesh, is a city known for its rich cultural heritage, historical significance, and royal grandeur. Located in the northern part of India, Lucknow is situated on the banks of the Gomti River. It has a population of over 3 million people and is the eleventh most populous city in India. Lucknow holds a prominent place in Indian history and has been a center of power and culture for centuries. It was the seat of the Nawabs of Awadh, who were known for their refined taste, extravagant lifestyle, and patronage of arts and literature. The city flourished under their rule and became a hub of art, music, dance, and poetry. One of the defining features of Lucknow is its unique architectural style, commonly referred to as "Nawabi" or "Awadhi" architecture. This style blends elements of Mughal and Persian architecture with local Awadhi influences, resulting in beautiful structures characterized by intricate designs, domes, minarets, and ornate motifs. Lucknow is renowned for its culinary delights and is often referred to as the "City of Nawabs" due to its legendary Awadhi cuisine. Apart from its cultural and culinary heritage, Lucknow is also home to several notable landmarks. The Bara Imambara, built in the 18th century, is an architectural marvel known for its labyrinthine passages and the grand Bhool Bhulaiya (maze). The Rumi Darwaza, an imposing gateway, is another iconic structure that has become a symbol of Lucknow. Lucknow has also made its mark in the field of education, with several renowned institutions located in the city. The city's educational institutions have produced scholars, writers, and poets who have contributed significantly to the literary and intellectual landscape of India. Furthermore, Lucknow is known for its warm hospitality and "tehzeeb" (etiquette). The people of Lucknow are known for their politeness, courtesy, and refined mannerisms, which have become an integral part of the city's identity. In recent years, Lucknow has seen rapid urbanization and development. It has emerged as a major commercial and IT hub, attracting businesses and industries from various sectors. The city has also witnessed infrastructural growth, with modern shopping malls, multiplexes, and residential complexes dotting its landscape. Lucknow's blend of historical charm and modern aspirations makes it a captivating destination for tourists, history enthusiasts, and food lovers alike. The city continues to preserve its cultural heritage while embracing the opportunities of the present, making it a vibrant and dynamic city in India's landscape.

HISTORY OF LUCKNOW

The history of Lucknow spans several centuries, beginning with its origins as a small settlement and evolving into a prominent city with a rich cultural and historical legacy. Here is an overview of the key historical milestones in the development of Lucknow:

Ancient and Medieval Era: The area around present-day Lucknow has a history dating back to ancient times. The region was part of the Gupta Empire (4th-6th century) and later came under the rule of various dynasties, including the Kannauj Kingdom, Delhi Sultanate, and the Mughal Empire. The city of Lucknow itself was established in the 13th century by the Suryavanshi dynasty, but it remained a small town until later periods.

Mughal Era: Lucknow gained prominence during the Mughal period when it became a provincial capital of the Awadh region. In 1722, Nawab Saadat Khan, a Persian noble appointed as the

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governor of Awadh, laid the foundation of Awadh's rule in Lucknow. The city flourished under the Mughal-appointed Nawabs of Awadh, who established their court and made Lucknow their capital. The reign of Nawab Asaf-ud-Daula (1775-1797) is often considered a golden era, known for its opulence, architecture, and patronage of arts and culture.

Nawabi Rule: The Nawabs of Awadh played a crucial role in shaping the cultural and architectural landscape of Lucknow. The city witnessed a remarkable transformation with the construction of magnificent structures such as the Bara Imambara, Chota Imambara, Rumi Darwaza, and the Residency. These architectural marvels, blending Mughal and Awadhi styles, still stand today as a testament to Lucknow's glorious past.

Colonial Era and the 1857 Rebellion: In the 18th and 19th centuries, Lucknow faced the shifting power dynamics between the Nawabs of Awadh, the British East India Company, and the British Raj. Lucknow became a center of resistance during the Indian Rebellion of 1857, with the siege of Lucknow being a significant event. The rebellion resulted in the end of Awadh's independent rule, and Lucknow was brought under direct British control.

Post-Independence: After India gained independence in 1947, Lucknow became the capital of the newly formed state of Uttar Pradesh. The city witnessed significant growth and development in various sectors, including education, industry, and administration. Institutions like Lucknow University, renowned schools, and government offices were established, contributing to the city's progress.

Modern Era: In recent years, Lucknow has undergone rapid urbanization, infrastructural development, and economic growth. It has emerged as a major center for commerce, information technology, and services. The city has embraced modernity while preserving its cultural heritage and continues to be a hub of art, literature, and traditional craftsmanship.

The history of Lucknow reflects its journey from a small town to a thriving metropolis, blending influences from ancient, medieval, and colonial periods. Today, the city stands as a testament to its rich past, offering a glimpse into the grandeur and cultural tapestry of its historical legacy

ADMINISTRATIVE DIVISIONS OF LUCKNOW DISTRICT

Name of Tehsil and area in Sq.Km.	Name of Block	Block area in sq.km	Number of Villages	Number of Nayay Panchayats	Number of Gram Panchayats
I. Lucknow (616.13)	i. Kakori	191.72	83	10	50
	ii. Sarojni Nagar	316.13	93	13	68
	iii. Chinhat	108.28	59	08	33
II. Malihabad (471.84)	iv. Malihabad	220.36	100	11	58
	v. Mal	251.48	87	11	55
III. Bakshi-Ka-Talab (350.42)	vi. Bakshi-Ka-Talab	350.42	183	17	99
IV. Mohanlalganj (644.07)	vii. Mohanlalganj	361.51	113	14	75
	viii. Gosaiganj	282.56	117	13	73
Total Rural	-	**2168.50**	**835**	**97**	**511**
Total Urban	-	**359.50**	-	-	
Total District	-	**2525.00**	-	-	

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The 'Uttar Pradesh Urdu, Arabi-Farsi University' was established on 1st October 2009 under U.P State Universities (Amendment) Act. It was renamed 'Shri Kanshiramji Urdu, Arabi-Farsi University on 4th April. 2011. In 2012, the university was re-christened 'Khwaja Moinuddin Urdu, Arabi-Farsi University, under U.P. State Universities (Amendment), Act 2012 (Notification No.597/79-V-1-12-2(Ka)-6-2012 dated 16th August 2012). Dr.Anis Ansari, IAS(Retd), took over as the Founder Vice Chancellor on 23rd April 2010.

"Our Guiding Light and Inspiration"- Sufi Saint Khwaja Moinuddin Chishti of Ajmer"

The University was named after Sufi Saint Khwaja Moinuddin Chishti of Ajmer who is known all over the world, for his benevolence and magnanimity. Khwaja Moinuddin was born in 1141 CE in Chishti in Herat, Afghanistan. Also known as 'Gharib Nawaaz' and 'Benefactor of the poor', he is the most famous saint of the Chishti order of Sufism in the Indian Subcontinent. After a brief stay at Lahore, Khwaja Moinuddin Chishti headed towards Delhi, which was, at that time, considered to be a city of political and religious disharmony. Khwaja Moinuddin Chishti began delivering his sermons in his characteristic soft-spoken demeanor. As a result of his kindness and forbearance, millions of Hindus and Muslims were inspired to move toward the path of truth and unity. Thereafter, Khwaja Moinuddin Chishti left Delhi and headed towards the remote city of Ajmer, where he resided with the one of most powerful princes of Northern India, Raj Prithviraj. Through his humble approach and modest existence, not only did the Sufi Saint mould the character of the people, but he also led them to more prosperous ways of living and cultivated in them the qualities of humanity and truth. Followers from all religions emulated and symbolized his dictum of "Sulh-i-Kul" (Peace with all). Thus, he brought the message of universal love and peace. He fulfilled the objectives of bringing together the various castes, communities and races, elevating humanity from the swamp of materialistic concerns, which is leading mankind towards destruction today. Against this backdrop, it was most apt that Lucknow, which is famous for its "Ganga-Jamuni tehzeeb" (culture) be chosen as the location for a university named after the great Khwaja Moinuddin Chishti, who was the paragon of Hindu-Muslim unity.

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Language establishes the identity of a nation. Language is also the means of identification, creation, preservation and extension of knowledge. It helps individuals and communities to connect with the world. As a subject, Language attracts many scholars and thinkers to explore its various unexplored dimensions. Many efforts are being made by the government to connect language with the country's heritage and promote quality research in the area. **The National Education Policy (NEP 2020)** also emphasizes promoting multilingualism and using the power of language in teaching and learning. Supporting these initiatives, the University too is attempting to contribute extensively towards the promotion of languages. Established under the Uttar Pradesh Arabi Farsi Universities Act 2009 (U.P. Act No. 12 of 2009) this University got its name as 'Khwaja Moinuddin Chishti Urdu, Arabi-Farsi University' by an Amendment in the year 2012 in the name of well acclaimed Sufi Saint Khwaja Moinuddin Chishti of Ajmer whose simplicity and generosity have inspired people across the globe. In the month of February 2020, the State Cabinet, passed the proposal to rename the University as 'Khwaja Moinuddin Chishti Language University.' Situated on Sitapur-Hardoi Bypass Road, the University aims to equip its students with quality education along with a deep understanding of the cultural fabric of the country and inspires them to contribute progressively towards building a knowledge society. The University started its first academic session in August 2013 with students pursuing studies in Urdu, Arabic, Persian, English, Hindi, Geography, History, Economics, Home Science, Physical Education, Political Science, Education, Commerce, Computer Science, Business Administration and Journalism and Mass Communication under its Graduate and Postgraduate programmes. Apart from these, Diploma courses have also been a popular option among students enrolling in the University. At present this strength has gone upto 4130 and number of programmes offered by this university has also increased significantly. Since its inception the University has grown considerably in its scale and scope. It now offers a plethora of learning opportunities to the students from within and outside the state and with a rich blend of professionalism and tradition, this University has already established a niche in the academic circle of Uttar Pradesh.

4 Professional courses such as Engineering and Technology have always been popular among the students. Therefore, the University has also introduced AICTE approved B.Tech. Program in Civil Engineering, Mechanical Engineering, Computer Science, Fashion Technology and Computer Science and Engineering with Artificial Intelligence and Machine Learning in the University since 2019. The University has also launched L.L.M. program and is striving to start LL.B. program under the faculty of legal studies from the current session. The University is constantly making new endeavors to establish its identity as a Language University. Thus, apart from offering courses in Hindi, English, Sanskrit, Urdu, Arabic and Persian the University is also in the process of introducing specialized courses in other Indian and Foreign Languages to help the students learn a new language in addition to their regular academic programmes. The university has also decided to offer courses pertaining to History and Culture of Language. in addition, Value Added Courses have been initiated by almost every department of the university to match the expectations of NEP 2020 guidelines. Looking at the importance of sports and physical activities along with studies, the University offers curriculum for Physical Education at Undergraduate level and sports events are organized in the University campus on a regular basis.

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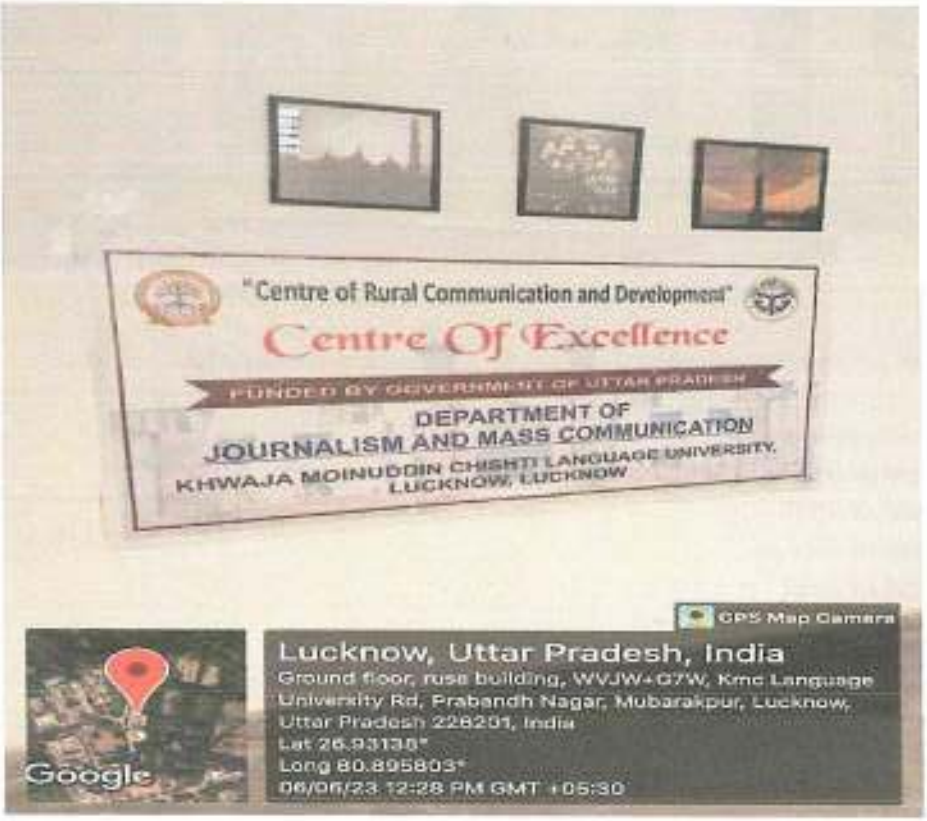
Besides taking care of physical security, efforts have been made to secure the premises digitally and for this purpose CCTV cameras have been installed throughout the campus. The University also provides free Wi-Fi facility to all students, faculty members and non-teaching staff.

Campus:

The university is presently located on 28 acres of land on Sitapur-Hardoi Bypass Road, adjacent to Indian Institute of Management (IIM), Lucknow. The Govt. of U.P. has decided to acquire additional 15 acres of land for the University. Another proposal of purchasing additional 120 acres of land from Lucknow Development Authority (LDA) is also being considered by Govt. of U.P.



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Faculties and Departments

The sanctioned strength of University teachers including Professors, Associate Professors and Assistant Professors is 132, while the strength of the non-teaching staff is 60.

Khwaja Moinuddin Chishti Language University

Department of Khwaja Moinuddin Chishti Language University

- Department of Arabic
- Department of English & Modern European & Asian Languages
- Department of Hindi
- Department of Persian
- Department of Urdu
- Department of Economics
- Department of Education
- Department of Geography
- Department of History
- Department of Journalism and Mass Communication
- Department of Physical Education
- Department of Political Science
- Department of Business Administration
- Department of Commerce
- Department of Computer Science and Information Technology
- Department of Home Science

Vision, Mission & Goals

Vision:

To achieve excellence in language, education, research and innovation grooms learners into becoming productive, responsible, ethical, creative and compassionate members of society.

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Mission:

To create a culture of inclusion, respect and collaboration for faculty members, students, and staff to achieve excellence.

To explore opportunities in Indian and Foreign Languages through preserving traditional Indian Knowledge System and using modern technology.

To ensure transformative educational experience for students focused on value-based learning, transparent work ethics, extension activities, community engagement and participative leadership.

To deliver education that provides access to diverse population, global opportunities and prepares students to lead in language, research, innovation, critical thinking and nation building.

Goals:

To promote learning of All Languages to understand the essence of their culture. To impart education and training in vocational and technical subjects so that the students are better equipped for job-oriented courses.

Khwaja Moinuddin Chishti Language University, Lucknow

Campus Area:	28 Acres
Academic Block:	02
Laboratories:	30 Approximately
Research Center:	20 Approximately
NCC Units:	1
NSS Units:	5

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Library:	10 Approximately
Parks:	1
Playing Grounds:	1
Gym:	1
Staff Quarters:	48
Hostel:	2
Vehicle Parking Grounds:	2

NAAC Rating:

KMC Language University was established in 2009 and is going for the 1st cycle of NAAC assessment Rating. However, KMC Language University is ISO 9001:2015 (Quality Management System) certified university.

QRO
QUALITY RESEARCH ORGANIZATION

Certificate of Registration

This is to certify that

KHWAJA MOINUDDIN CHISHTI LANGUAGE UNIVERSITY
SITAPUR- HARDOI BYPASS ROAD, LUCKNOW,
PIN - 226013, U.P. INDIA

has been independently assessed by QRO
and is compliant with the requirement of:

ISO 9001:2015

Quality Management System

For the following scope of activities:

EDUCATIONAL INSTITUTE

Date of Certification: 16th November 2021 — 2nd Surveillance Audit Due: 15th November 2023
1st Surveillance Audit Due: 15th November 2022 — Certificate Expiry: 15th November 2024

Certificate Number: 3050211116380

QRO EGAC IAF

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Awareness for Environment:

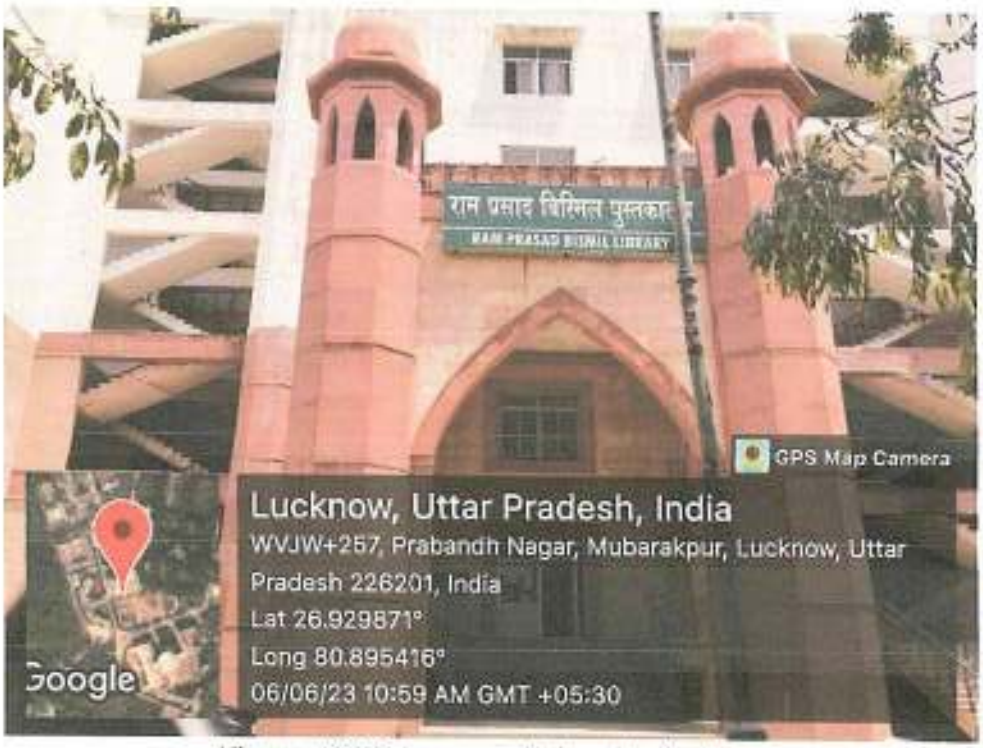
Khwaja Moinuddin Chishti Language University exists and has a focus on environmental awareness; it may have its own programs or initiatives aimed at promoting environmental sustainability, conservation, or eco-consciousness.

To gather accurate information about the university's specific efforts or initiatives related to the environment, I recommend contacting the university directly or visiting their official website. They should be able to provide you with the most accurate and up-to-date information about their environmental awareness programs, if any.

Please note that my information may not be comprehensive or reflect recent developments, so it's always best to verify with an official source.

Library

The library houses a rich collection of 27326 books, relating to different subjects. The University library offers a congenial study environment for students, staff and visitors and provides a wealth of knowledge through its vast collection of books and online resources. It houses a rich resource of books, relating to different subjects. It also subscribes to a variety of periodicals, magazines and journals to keep the students abreast of the contemporary scenario in their areas of study.



Library at KMC Language University, Lucknow

Primary Health Centre & Banking:

Health Centre

The medical Centre of the university caters to the medical need of students and staff. The Centre offers 24-hour OPD facility and is equipped to deal with any emergency situation.

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Medical facility at KMC Language University, Lucknow

BANK

An exclusive branch of Canera Bank with ATM facility is operating within the campus to facilitate financial transaction of the university community, especially the students.

Other Student Activities

Clubs and Organizations: Students can join various clubs and organizations based on their interests, such as cultural clubs, sports clubs, academic clubs, social service organizations, and more. These groups often organize events, workshops, competitions, and meetings related to their respective focus areas.

Cultural Events: Universities often host cultural festivals, music concerts, dance performances, and drama productions. These events provide opportunities for students to showcase their talents and immerse themselves in diverse cultural experiences.

Sports and Athletics: Many universities have sports facilities and organize intramural or intercollegiate sports competitions. Students can participate in a range of sports, including football, basketball, cricket, badminton, and athletics.

Seminars and Workshops: Universities frequently organize seminars, workshops, and conferences on various topics, inviting renowned speakers, scholars, and industry experts. These events offer students the chance to learn from experts and engage in intellectual discussions.

Community Service: Universities often encourage students to engage in community service activities, such as volunteering at local organizations, conducting awareness campaigns, or participating in social initiatives.

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Student Government: Universities typically have student governments or student unions that represent the student body and organize events, address student concerns, and advocate for student rights and welfare.

Academic Competitions: Students can participate in academic competitions, research symposiums, hackathons, and other events related to their fields of study. These activities foster academic growth and encourage innovation and collaboration.

Discipline & use of Mobile phone:

The use of mobile phones by the students is prohibited in the classrooms and on the campus. Nevertheless, they can be used in the garden. Dress-Code has been decided for the faculty members. The whole campus is monitored by CCTV cameras. The University takes strict measures to maintain safety and security for all.

N.S.S (National Service Scheme):

The program aims to inculcate social welfare in students, and to provide unbiased service to society. NSS volunteers work to ensure that everyone who is needy gets help to uplift their standard of living and lead a life of dignity.


तिरंगा यात्रा व स्वच्छता पखवाड़ा का आयोजन


छात्रों ने बनाए पोस्टर

ख्वाजा मुईनुद्दीन चिश्ती भाषा विवि की एनसीसी यूनिट ने तिरंगा यात्रा निकाली। साथ ही राष्ट्रीय सेवा योजना की इकाई द्वारा पोस्टर मेकिंग कार्यक्रम का भी आयोजन किया गया। यात्रा का शुभारंभ कुलपति पो. एनवी सिंह ने किया।


ख्वाजा मुईनुद्दीन चिश्ती भाषा विश्वविद्यालय लखनऊ में एक दिवसीय शिविर का आयोजन

National Cadet Corps (NCC)

National Cadet Corps (NCC) was started in the university in the year 2019 to develop character, comradeship, discipline, and secular outlook, spirit of courage and ideals of volunteerism in the girl students.

At present the university has a unit of 20 UP Girls Battalion NCC Lucknow, its capacity is 80 cadets. All the cadets have been participating in various national and local programs from time to time. In the time of Covid-19, handmade masks were distributed by the cadets keeping in mind the safety rules. Cadets participate enthusiastically on various important national and

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social issues like Constitution Day, Voter Awareness Day, Mission Shakti, Swachhta Abhiyan, Yoga Day, Fit India and all national festivals, so that they succeed in further deepening their connection with society. Various social activities such as awareness Campaigns, Tree Plantation Drive, Mission Ganga, Nadi Utsav and Mission Shakti etc. NCC training activities like physical training, Yoga, Drill, firing, map reading, obstacle training enhances the personality of a cadet and have also increase the chances of making future in Armed forces. As a cadet practical experiences are amazing. During COVID-19 times, a lot of activities were also done as awareness campaigns for vaccination and spreading the do's and don'ts of the COVID-19. NCC keeps the safety and security of its cadets as a priority too.

The cadets participated in various programs like essay writing competition, slogan writing etc. organized under Mission Shakti Yojana of Government of Uttar Pradesh. Along with the suggestions given by health and nutrition experts, we try to make our life better. On 7th February 2021, the Chancellor of the University and Hon'ble Rajpal, Uttar Pradesh Smt. Anandiben Patel said that various creative works are being done by the girls' cadets, which has increased their morale.

Needless to say that the National Cadet Corps is motivating the Indian youth to join the Armed Forces and also providing a conducive environment for the development of their overall personality. Surely the day is not far when the NCC girls of the university will flaunt their success not only in the country but in the world.

UG Programs:

Sr. No.	Details
1.	B.A. Urdu
2.	B.A. Arabic
3.	B.A. Persian
4.	B.A. English
5.	B.A. Hindi
6.	B.A. Sanskrit
7.	B.A. French
8.	B.A. German
9.	B.A. Chinese
10.	B.A. Japanese
11.	B.A. Pali
12.	B.A. Fine Arts
13.	B.Com.
14.	B.Com. Travel & Tourism Management
15.	B.B.A.
16.	B.A. History
17.	B.A. Economics
18.	B.A. Political Science

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19.	B.A. Sociology
20.	B.A. Education
21.	B.A. Geography
22.	B.A. Home Science
23.	B.A. Physical Education
24.	B.A. JMC
25.	B. Ed
26.	B.C.A.
27.	B.Sc. Physics
28.	B.Sc. Chemistry
29.	B.Sc. Mathematics
30.	B.Sc. Computer Science
31.	B.Sc. Zoology
32.	B.Sc. Botany
33.	B.Sc. Biotechnology
34.	B.Sc. Microbiology
35.	B.Sc. Statistics
36.	B. Tech. (Civil Engineering)
37.	B. Tech. (Mechanical Engineering)
38.	B. Tech. (Computer Science Engineering)
39.	B. Tech. (Biotechnology Engineering)
40.	B. Tech. (Computer Science Engineering with AI & ML)
41.	B. Tech. (Civil and Environmental Engineering)
42.	B. Tech. (Automation & Robotics Engineering)
43.	B. Tech. (Artificial Intelligence & Data Science Engineering)
44.	Bachelor of Laws
45.	B. A. LL.B

PG Programs

Sr. No.	Details
1.	M.A. Urdu
2.	M.A. Arabic
3.	M.A. Persian
4.	M.A. English
5.	M.A. Hindi (Self Finance)
6.	M.A. Fine Arts (Self Finance)
7.	M.Com.
8.	M.B.A.
9.	M.A. Geography
10.	M.A. Home Science
11.	M.A. Education
12.	M.A. History
13.	M.A. Economics
14.	M.A. JMC
15.	M.C.A.
16.	M. Tech. (CSE- AI &ML)
17.	M. Tech. (Mechatronics)

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Ph.D. Programs

Sr. No.	Details
1.	Department of Arabic
2.	Department of Business Administration
3.	Department of Commerce
4.	Department of Computer Science & Information Technology
5.	Department of Economics
6.	Department of Education
7.	Department of English & Modern European & Asian Languages
8.	Department of Geography
9.	Department of History
10.	Department of Home Science
11.	Department of Journalism & Mass Communication
12.	Department of Persian
13.	Department of Urdu

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Introduction of Auditing Firm

M/s. G C Consultancy Services, Gorakhpur is ISO:9001, 14001 & 45001 certified, a fast-growing committed consultancy firm. It has its unique feature & unlike other organization we don't simply conduct audit and report preparation is done. But we consider all Government norms (Central & State), CPCB, SPCB, NGT and Supreme court guidelines at the time of Audit. The quality and adoption of CPCB, SPCB norms is our commitment. It is one of the fast-growing Organization in Energy audit, renewal energy, water conservation, waste management, air quality services providing company executed several projects covering all the diversified field Sectors & states of India. The Director Being Ex Central Government Officer & having experience of 34+ years and his associate team members are very well experienced in the field of Environment, Energy Audits. The associate team and experts are highly qualified and experienced in the field of diversified Environment Audit and Services. Individual credential of each member in the field of Energy Audit is very rich due to their past association with the very reputed organization of Auditing sectors. The company has Head office at Gorakhpur, Uttar Pradesh.

Name of Firm	M/s G C Consultancy Services
Address	614, Vasant Enclave, Rajender Nagar, Gorakhnath,Gorakhpur. 273015
Contact details	7007794292, 9919935600 Email id: gccs4114@gmail.com

G C Consultancy Director's & team Details

Sr. No.	Name	Designation	Qualification and Technical Experience
1.	Er. Ashutosh Kumar Srivastava Director	Principal Auditor 34+ Years of Experience	*BE (Civil), 1986 batch Lead Auditor ISO 9001, 14001, 22001, 45001, 50001, 17020. GRI professional 2021 Updated. CORSIA certified IGBC AP, ASSOCHAM GEM CP, Expert in water audit, air audit, waste management.*
2.	Dr. Anita Srivastava	Head for documentation	*Ph. D (Botany) 1991, Rajasthan University,Jaipur. Rajasthan*
3.	Mr. Vikas Srivastava Deputy Director	Water Quality & Quantity, Ambient Air Quality Expert, and Head for preparation of report. 5+ Years' Experience	*B.Com. from DDUGU* *M.Com. from DDUGU* *UGC NET Qualified*

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4.	Mr. Lokendra Singh Chauhan	Energy & Renewal Expert 15 Years' Experience	*AMIE (Electrical Engineering) from Institute of Engineers India, Kolkata, PG Diploma in Strategic HR Management, Retired as Scientist-D/ Joint Director from Bureau of BIS after 38+ years' experience of working in different activities of BIS.*
5.	Priyanka Tomar	*Trainee Auditor*	*Bachelor of Engineering* *Master of Engineering*
6.	Mr. Gaurav Verma	*Program Officer* *4+ years' experience*	*B.Com. from Siddharth University* *M.Com. from Siddharth University*

GCCS Team at KMC Language University, Lucknow

M/s G C Consultancy Services Registered in Ministry of Micro, Small & Medium Enterprises (MSME) as Micro unit, registered in NSIC under Environment Consultancy services.

List of Instruments

Following are the instrument used at the time of the Environment Audit.

Sr. No.	Instrument	Make and Sr. No.
1	Water testing kits at site	*Prerana Laboratories*
2	Air Quality test	*Prana Laboratories*

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Environmental Audit

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Introduction

Environment Audit an Effective Efforts towards Environment

Modernization and industrialization are the two important outputs of the twentieth century that have made human life more luxurious and comfortable. Simultaneously, they are responsible for various uses of natural resources, exploitation of forest and wildlife, producing passive solid waste, polluting the scarce and sacred water resources, and finally making our mother Earth ugly and in-hospitable. Today, people are getting more familiar with global issues like global warming, greenhouse effect, ozone depletion, and climate change, etc. Now, it is considered as a final call by Mother Earth to walk on the path of sustainable development. The time has come to wake up, unite and combat together for a sustainable environment.

Considering the present environmental problems of pollution and excessive use of natural resources, Hon'ble Prime Minister Shri Narendra Modi ji has declared the Mission of Swachh Bharat Abhiyan. Also, University Grants Commission has mentioned the "Green Campus, Clean Campus "mission mandatory for all higher educational institutes. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustain ability is more prevalent. Govt. of India has issued National Education Policy 2020 and has issued white paper on its policy. Generation coming should be well conversant with the effects and impacts on Environment and Modernization/ Development. Coming generations must know how to make a balance in both.

Environment Audit is the most efficient ecological tool to solve such environmental problems. It is a process of regular identification, quantification, documenting, reporting, and monitoring of environmentally important components in a specified area. Through this process, the regular environmental activities are monitored within and outside of the concerned sites which have direct and indirect impacts on the surroundings. An environmental audit can be one of the initiatives for such institutes to account for their energy, water resource use as well as wastewater, solid waste, hazardous waste generation. The environmental Audit process can play an important role in the promotion of environmental awareness and sensitization about resource use. It can create consciousness towards ecological balance, values, and ethics. Through the green audit, one can get direction about how to improve the condition of the environment without much affecting the impact on nature.

Difference between Green & Environment audit

Green Auditing", an umbrella term, is known by another name "Environmental Auditing". The 'Green Audit' aims to analyze environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience.

Green accounting is accounting that identifies, measures, assesses, and discloses costs associated with environmental corporate activities. Environmental accounting generates reports for the company's internal and external stakeholders to use as decision-making tools.

Environment Audit

Environment auditing is the process of identifying and determining whether an institution's practices are eco-friendly and sustainable. Traditionally, we are good and efficient users of natural resources. However, over the period excess use of resources like energy, water, chemicals are become habitual for everyone especially, in common areas. Now, it is necessary to check whether our processes are consuming more than the required resources? Whether we are handling waste carefully? In fact, as per modern thinking there is waste as such. The policy of **Waste to Wealth** has been the new concept introduced. Environment audit regulates all such practices and gives an efficient way of natural resource utilization. In the era of climate change and resource depletion, it is necessary to verify the processes and convert the min to green and clean ones. The environmental audit provides an approach for it. It also increases over all consciousness and awareness among the people working in institutions towards an environment.

Government of India through its National Environment Policy in 2006 has made mandatory for every organization to conduct green audit / environmental audit to ensure a clean and healthy environment within and outside the organization.

Goals of Environment audit

Khwaja Moinuddin Chishti Language University has conducted an Environment audit & other audits earlier with specific goals as:

- Assess facility of different types of waste management.
- All waste shall be first finding the scope of its use under *the Waste to Wealth policy.*
- Increase environmental awareness throughout campus.
- Identification and documentation of green practices followed by university.
- Identify strengths and weaknesses in green practices.
- Conduct a survey to know the ground reality about green practices.
- Analyze and suggest solutions for problems identified from the survey.
- Identify and assess environmental risk.
- Short-term goal of environment audit program.
- The long-term goal of the environmental audit program is to collect base line data of environmental parameters and resolve environmental issues.
- To motivate staffs and students for optimized sustainable use of available resources.

Objectives of Environment audit

- To examine the current practices which can impact the environment such as water, air, optimum resource utilization, waste management, etc.
- To prepare an Environmental Statement Report on green practices followed by different departments, support services, and administration building.
- To set goals (Short/ Long), vision, and mission for green practices on the campus.

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EMP) in various departments and

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of human resources worldwide.
cy under which there shall be 4
pendently assessment of all HEIs.
with the aim to percolate the
Likewise, different technological
the higher education institutes.
ss the problem concerning the
A), Social Impact Assessment (SIA),

-governing organization that rated
of accreditation of the institution.
educational institutes under NEP
green audits is to upgrade the
It is performed by considering
ewater (approach of recycling and
noise monitoring etc. for making

They are also the future of the
ucational institution will inculcate
Many environmental activities like
, Bird watching camps, no vehicle
zens of the country.

nal Institute.

pus.

ormance.

ation, solid and waste.

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- To create plastic-free campus and evolve health consciousness among the stakeholders.
- Recognize the cost-saving methods through waste minimizing and managing.
- Authenticate conforms to the implemented laws.
- Empower the organizations to frame a better environmental performance.
- Enhance the alertness for environmental guidelines and duties. Impart environmental education through systematic environmental Management approach and improving environmental standards.
- Benchmarking for environmental protection initiatives.
- Development of ownership, personal and social responsibility for the University and its environment.
- Developing an environmental ethic and value systems in youngsters.
- Finally, it will help to build a positive impression through green initiatives for the upcoming NAAC visit.

आप विश्वविद्यालय में पर्यावरण दिवस पर किया गया पौधारोपण

चौधरी लखनऊ एजुकेशनी के चरण विश्वविद्यालय पर्यावरण दिवस के अवसर पर विश्वविद्यालय में कुलपति प्रो. एन.पी. सिंह के संरक्षण में वृक्षारोपण अभियान चलाया गया। वृक्षारोपण के इस अभियान में जे.के. कंसल्टेंसी सर्विसेज के निदेशक आशुतोष कुमार श्रीवास्तव की पब्लिक प्राइवेट पार्टनरशिप के अंतर्गत भागीदारी रही। अभियान की शुरुआत कुलपति के करकमलों द्वारा कुलपति के पौधा रोपण से हुई। कार्यक्रम में कुलपति ने विद्यार्थियों को पर्यावरण में वृक्षों के महत्व के बारे में जानकारी किया। महिला अध्ययन केंद्र की कोऑर्डिनेटर डॉ नलिनी मिश्र ने छात्राओं तथा महिलाओं को अच्छे पर्यावरण से स्वास्थ्य पर पड़ने वाले प्रभाव के बारे में बताया। कार्यक्रम की संयोजिका डॉ. ममता शुक्ला एवं डॉ. नलिनी मिश्रा रहीं। कार्यक्रम में प्रो. फखरे आलम, कुलानुशासक डॉ. नीरज शुक्ल, डॉ प्रवीण कुमार राय, डॉ रुचिता तुगनायत चौधरी, डॉ उमेश सिंह, डॉ मनोज कुमार सहित समस्त विद्यार्थियों तथा कर्मचारियों ने कार्यक्रम में बढ़-चढ़कर भागीदारी की।

Plantation drive on World Environment Day on 5th June 2023 with Hon'ble Vice Chancellor at KMC Language University, Lucknow

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1.0 WATER & WASTEWATER AUDIT

1.1 Introduction

Water is a precious natural national resource available with affixed quantum. The availability of water is decreasing due to the increasing population of the nation as per capita availability of utilized water is going down. Due to the ever-rising standard of living of people, industrialization, urbanization, demand for fresh water is increasing day by day. The unabated discharge of industrial effluent in the available water bodies is reducing the quality of these ample sources of water continuously. Hence, the national mission on water conservation was declared by the Honorable Prime Minister Narendra Modi as 'Jal Shakti Abhiyan' and appealed to all citizens to collectively address the problem of water shortage, by conserving every drop of water and suggesting conducting water audits for all sectors of water use. Water audit can be defined as a qualitative and quantitative analysis of water consumption to identify means of reducing, reusing, and recycling water. Water Audit is nothing but an effective measure for minimizing losses, optimizing various uses, and thus enabling considerable conservation of water in their irrigation sector, domestic, power, and industrial sectors. The measurement of water losses due to different uses in the system or any utility is essential to implement water conservation measures in such an establishment.

Water Audit Process

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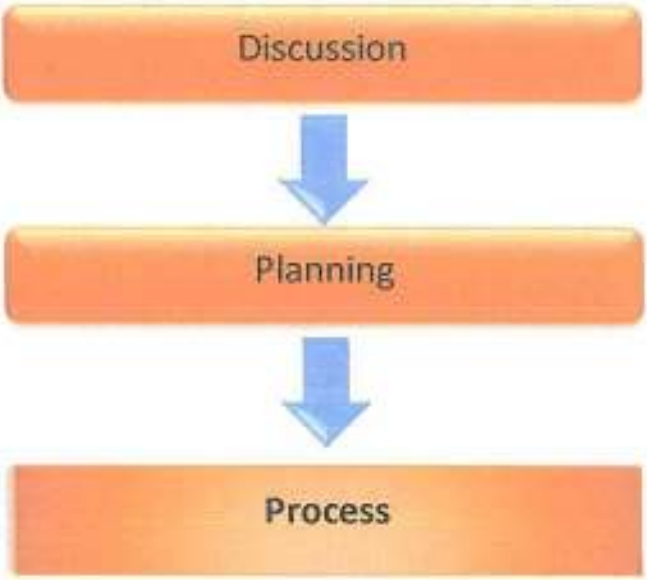

1.2 Importance of Water Audit

- Systematic process.
- May some surprising results.
- Easier to work on solutions when the problems are identified.
- Attracting mechanisms can be put into place.

It is observed that several factors like climate, culture, food habits, work and working conditions, level and type of development, and physiology determine the requirement of water. The community which has a population between 20,000 to 1,00,000 requires 100 to 150 liters per person (capita) per day. The communities with a population over 1,00,000 require 150 to 200 liters per person (capita) per day. As per the standards provided by WHO Regional Office for Southeast Asia Schools require 2 liters of water perstudent for drinking purposes; 10-15 liters per student for Water-flush toilets. Administration requires (Staff Accommodation not included) 50 liters per person per day.

1.3 Water Audit

The university is spread in a sprawling *lush green* campus of 28 acres dotted with buildings of Academic, Administrative and support services. Water usage can be definedas water used for all activities which are carried out on campus from different water sources. This includes usage in all residential buildings / hostel, academic buildings, on-campus, and on-grounds. Wastewater is referred to as the water which is transported off the campus.The wastewater includes sewerage; residence water used in cooking, showering, clotheswashing as well as wastewater from chemical and biological laboratories which ultimately go down in the sink or drainage system.

1.4 Water Quality

Primary Water Quality Criteria for Bathing Waters, in a water body or its part, water is subjected to several types of uses. Depending on the types of uses and activities, water quality criteria have

been specified to determine its suitability for a particular purpose. Among the various types of uses there is one use that demands the highest level of waterquality or purity and that is termed as "Designated Best Use" in that stretch of water body.Based on this, water quality requirements have been specified for different uses in terms of primary water quality criteria. The primary water quality criteria for bathing water are specified along with the rationale in table 1. PRIMARY WATER QUALITY CRITERIA FOR BATHING WATER (Water used for organized outdoor bathing) CRITERIA 1. Fecal Coliform MPN/100 ml:, & Fecal Streptococci MPN/100 ml: 2. pH: 3. Dissolved Oxygen: 4. Biochemical Oxygen demand 3-day,27°C: 500 (desirable) 2500 (Maximum Permissible) 100 (desirable) 500 (Maximum Permissible) Between 6.5 -8.5 5 mg/1 or more 3 mg/1 or less RATIONALE to ensure low sewage contamination. The desirable and permissible limits are suggested to allow for fluctuation in environmental conditions such as seasonal change, changes in flow conditions etc. The range provides protection to the skin and delicate organs like eyes, nose, ears etc. which are directly exposed during outdoor bathing. The minimum dissolved oxygen concentration of 5 mg/1 ensures reasonable freedom from oxygen consuming organic pollution immediately upstream which is necessary for preventing production of anaerobic gases (obnoxious gases) from sediment.The Biochemical Oxygen Demand of 3 mg/1 or less of the water ensures reasonable freedom from oxygen demanding pollutants and prevents production of obnoxious gases.

1.5 Drinking Water Quality

The Gomti River is one of the major rivers in northern India that flows through the city of Lucknow. The ground water of Lucknow contains Water Quality Criteria Designated-Best-Use Class of water Criteria Drinking Water Source without conventional treatment but after disinfection:

A. Total Coliforms Organism MPN/100ml shall be 50 or less pH between 6.5 and 8.5 Dissolved Oxygen 6 mg/l or more Biochemical Oxygen Demand 5 days 20° C, 2 mg/l or less Outdoor bathing (Organized).

B. Total Coliforms Organism MPN/100ml shall be 500 or less pH between 6.5 and 8.5 Dissolved Oxygen 5 mg/l or more Biochemical Oxygen Demand 5 days 20° C, 3 mg/l or less Drinking water source after conventional treatment and disinfection.

C. Total Coliforms Organism MPN/100ml shall be 5000 or less pH between 6 to 9 Dissolved Oxygen 4 mg/l or more Biochemical Oxygen Demand 5 days 20° C, 3 mg/l or less Propagation of Wildlife and Fisheries.

D. pH between 6.5 to 8.5 Dissolved Oxygen 4 mg/l or more Free Ammonia (as N) 1.2 mg/lor less Irrigation, Industrial Cooling, Controlled Waste disposal.

E. pH between 6.0 to 8.5 Electrical Conductivity at 25^0 C micro mhos/cm Max.2250 Sodium absorption Ratio Max. 26 Boron Max. 2 mg/l.

1.5.1WHO Drinking Water Specifications Updated On 11 Oct 2019

WHO produces international norms on water quality and human health in the form of guidelines that are used as the basis for regulation and standard setting, in developing and developed countries worldwide. The quality of drinking water is a powerful environmental determinant of health. Assurance of drinking water safety is a foundation for the prevention and control of waterborne diseases. The guidelines developed by WHO are prepared through a vast global consultative process involving WHO member states (India is the member state), national

authorities and international agencies, in consultation with the WHO Expert Advisory Panel.

Parameters	Standard limits as per WHO Guidelines (mg/L)
Acrylamide	0.0005
Alachlor	0.02
Aldicarb	0.01
Aldrin and Dieldrin	0.00003
Ammonia	1.5
Antimony	0.02
Arsenic	0.01
Atrazine	0.002
Barium	0.7
Benzene	0.01
Benzo (?) pyrene	0.0007
Boron	0.5
Bromate	0.01
Bromodichloromethane (BDCM)	0.06
Bromoform	0.1
Cadmium	0.003
Carbofuran	0.007
Carbon tetrachloride	0.004
Chlorate	0.7
Chlordane	0.0002
Chloramines	0.5 - 1.5
Chloride	200 – 300
Chlorine	5
Chlorite	0.7
Chloroform	0.3
Chlortoluron	0.03
Chlorpyrifos	0.03
Chromium	0.05
Color in drinking water	No visible color
Copper	2.0
Cyanazine	0.0006
Cyanide	0.07

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1,2-Dichlorobenzene	1.0
1,4-Dichlorobenzene	0.3
1,2-Dichloroethane	0.03
Dichloromethane	0.02
2,4-Dichlorophenoxyacetic acid	0.03
DDT and metabolites	0.001
Di(2-ethylhexyl) phthalate	0.008
1,2-Dichloroethylene	0.05
1,2-Dichloropropane	0.04
Dimethoate	0.006
1,4-Dioxane	0.05
Dissolved oxygen	No health-based guideline value is recommended
Eidetic acid (EDTA)	0.6
Endrin	0.0006
Epichlorohydrin	0.0004
Ethylbenzene	0.3
Fenoprop	0.009
Fluoride	1.5
Hexachlorobutadiene	0.0006
Iron	No health-based guideline value is proposed
Isoproterenol	0.009
Lead	0.01
Lindane	0.002
Manganese	0.4
Mercury	0.006
Methoxychlor	0.02
Metolachlor	0.01
Microcystin-LR	0.001
Melinite	0.006
Molybdenum	0.07
Mon chloroacetate	0.02
N-Nitroso	0.0001

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dimethylamine	
Nickel	0.07
Nitrate	50
Nitrilotriacetic acid (NTA)	0.2
Nitrite	3
Pendimethalin	0.02
Pentachlorophenol	0.009
Permethrin	0.3
pH	No health-based guideline value is proposed
Pyriproxyfen	0.3
Selenium	0.01
Simazine	0.002
Sulphate	No health-based guideline value has been derived
Styrene	0.02
Terbuthylazine	0.007
Tetrachloroethylene	0.04
Toluene	0.7
Total dissolved solids (TDS)	No health-based guideline value is proposed
Trichloro acetate	0.2
Trichloroethylene	0.02
2,4,6, -Trichlorophenol	0.2
Trifluralin	0.02
Tritium	10000 Bq/L
Uranium	0.015
Vinyl chloride	0.0003
Xylenes-total	0.5
Zinc	No health-based guideline value is proposed

Water contains natural harmful compounds such as lead and arsenic among others. How harmful are these and what is the level of contamination, we must know about.

1.5.2 Water quality in India Source UNICEF Repository

Both rural and urban India is faced with water problems. People do not have access to good Quality, safe drinking water. The source for most drinking water is either rivers or underground aquifers (wells). Since water can dissolve just about anything that it meets long enough, often the groundwater we get isn't pure.

It could contain naturally occurring lead, arsenic, mercury, radium, chloride, iron and copper compounds dissolved in it. Most of these aren't harmful when consumed in small quantities. But when the levels go higher than the prescribed amounts, it could be harmful and sometimes, even fatal. Let's analyze the effects of each of these compounds on our health and understand from the available data which states in India are susceptible to which types of contamination.

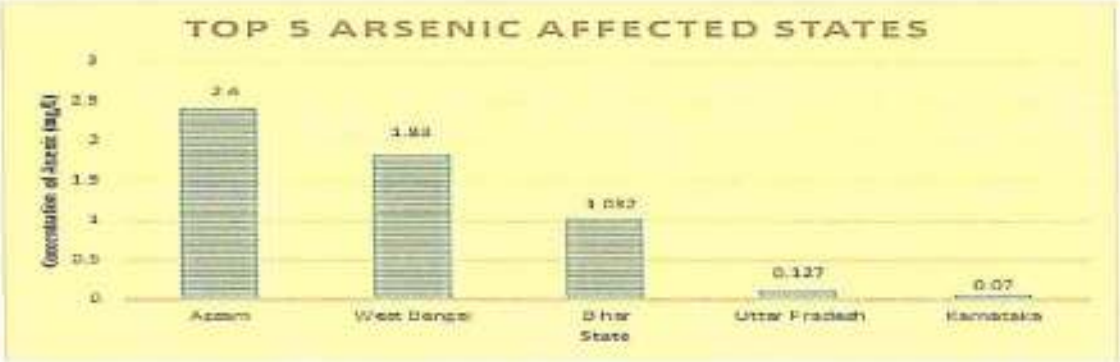
Iron

Iron, which is seldom found in concentrations greater than 10 milligrams per liter (mg/L) or 10 parts per million can be a troublesome chemical in drinking water. Corrosion of pipes is a common reason why iron is found in drinking water. As little as 0.3 mg/L concentration of iron can make the water appear brown. A laboratory analysis of the water sample can tell you the extent of your problem.

The best way to treat this is to use aeration/ filtration or chlorination techniques. Chlorination is

the process of adding the element chlorine to the water to make it fit for human consumption.

Arsenic



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Arsenic is a semi-metal found in foods and mostly in groundwater. Elevated levels of arsenic lead to metabolism failure in the body causing severe heart diseases, night blindness, cancer and even diabetes. A study conducted by USA today.com states that around 70 countries are affected by arsenic poisoning from groundwater. Assam and West Bengal have high concentrations up to 2.4 mg/L and 1.83 mg/L respectively.

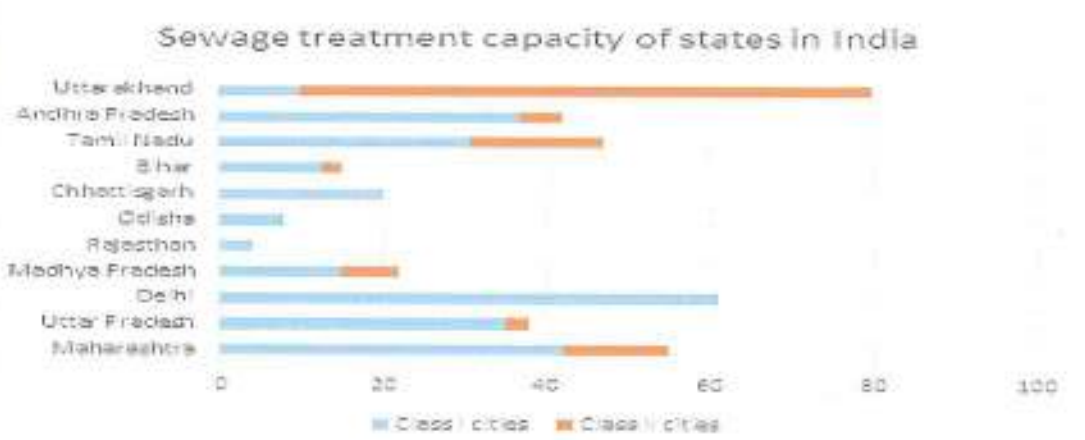
Chlorine and Fluoride

Chlorine and fluoride are added to water to kill pathogens, which are disease producing agents. An excess amount of chlorine in the water causes a problem because it leaves behind a residue. This "residual amount", when consumed, reacts inside the stomach, and damages some cells of the organs.

Fluoride is added in water just to prevent cavities, whether you have cavities or not! An excess amount of fluoride in water causes tooth discoloration forming yellow or brown pits and patches on teeth. Long term high exposure (more than 4 ppm) to fluoride may also result in bone spurs and birth defects. Rajasthan and Assam have the highest concentrations of these.

Nitrate

Nitrate, a naturally occurring form of nitrogen, is found in the soil. It is required in large quantities to sustain high crop yields. A tasteless, colorless, and odorless compound, you cannot detect it unless your water is chemically analyzed. If you drink water from a private well, get a qualified laboratory to test it yearly. Times of India reported, "Dental and spine-related ailments are showing up in many cities and villages of Karnataka due to increasing levels of Nitrate concentration in drinking water."



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Sewage treatment capacity of states in India

The major cause of increasing nitrate content is open sewage disposal and the use of nitrogen fertilizers. Since rural sanitation in the country is poor, the presence of nitrates in water is evident of such contamination. Proper sewage treatment including contaminants and recycling of wastewater to reuse it for various uses like gardening, toilet flushing, and car washing is necessary to keep these levels down. Currently Maharashtra and Uttar Pradesh have the highest sewage treatment capacity in India in Class I cities.

From the above analysis, we can see the extent of contamination that we are exposed to. Here are some safeguards that we can take to get clean drinking water.

- Water supply protection is most effective before contamination occurs. Surface water must never be allowed to flow down the well. Rainwater and runaway water should be sloped out of a water body. A minimum of 300 feet distance must be maintained betweensewage disposal and water supply areas.
- Also, it is important to locate and eliminate the source of the contamination. For example, lead and iron contamination can be eliminated by replacing pipes, fittings, and fixtures.
- New sources for water supply should be developed in case the existing supply is extensively contaminated with nitrate, salt, pesticides, and other chemicals.
- Lastly, water must be treated to remove possible disinfectants and chemicals.

1.5.3 INDIAN STANDARDS FOR SAFE DRINKING WATER

- The Bureau of Indian Standards (BIS) has specified drinking water quality standards in India to provide safe drinking water to the people. It is necessary that drinking water sources should be tested regularly to know whether water is meeting the prescribed standards for drinking or not and, if not, then, the extent of contamination/ unacceptability and the follow-up required.
- Apart from BIS specification for drinking water, there is one more guideline for water quality, brought out by the Ministry of Water Resources, Government of India in 2005. This is known as Uniform Protocol for Water Quality Monitoring. A need has arisen to have a separate uniform protocol for Drinking Water Quality Monitoring in view of increasing risk of geogenic and anthropogenic contamination.
- Keeping in view requirement of preparing Uniform Drinking Water Quality Monitoring Protocol, the Ministry of Drinking Water and Sanitation (MDWS), Government of India constituted an Expert Group which prepared the Protocol. The Drinking Water Quality Monitoring protocol describes specific requirements for monitoring drinking water quality with a view to ensure provision of safe drinking water to the consumers.

1.5.4 Definition of drinking water quality

BIS has set specifications in IS–10500 and subsequently the revised edition of IS 10500: 2012 in Uniform Drinking Water Quality Monitoring protocol.

Some parameters apart from those mentioned in IS 10500: 2012 may also be measured if the States deem it necessary. This standard has two limits i.e., Acceptable limits and permissible limits in absence of alternate source. If any parameter exceeds the limit, that water is considered unfit for human consumption.

Broadly speaking water is defined as unfit for drinking as per Bureau of Indian Standards, IS-10500-2012, if it is bacteriologically contaminated (presence of indicator Uniform Drinking Water Quality Monitoring Protocol bacteria particularly E-coli, viruses etc.) or if chemical contamination exceeds maximum permissible limits (e.g. excess fluoride [>1.5mg/l], Total Dissolved Solids (TDS) [>2,000 mg/l], iron [>0.3 mg/l], manganese [>0.3 mg/l], arsenic [>0.05 mg/l].

The latest drinking water specification and test protocol are:

Sr. No.	Test Parameter	IS: 10500-2012 Drinking Water Specification (Second Revision)		Method of Test (Indian Standard IS:3025 Methods of Sampling and Test for Water and Waste Water)
		Requirement (Acceptable limit)	Permissible limit In the Absence of alternate source	
1.	Odor	Agreeable	Agreeable	IS:3025 Part 5
2.	Taste	Agreeable	Agreeable	IS:3025 Part 8
3.	pH value	6.5 – 8.5	No relaxation	IS:3025 Part 11
4.	Turbidity, NTU, Max	1	5	IS:3025 Part 10
5.	Total dissolved solids (TDS), mg/l, Max	500	2000	IS:3025 Part 16
6.	Total alkalinity as CaCO3, mg/l, Max	200	600	IS:3025 Part 23

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Sr. No.	Test Parameter	IS: 10500-2012 Drinking Water Specification (Second Revision)		Method of Test (Indian Standard IS:3025 Methods of Sampling and Test for Water and Waste Water)
		Requirement (Acceptable limit)	Permissible limit In the Absence of alternate source	
7.	Total hardness as CaCO3, mg/l, Max	200	600	IS:3025 Part 21
8.	Calcium as Ca, mg/l, max	75	200	IS:3025 Part 40
9.	Magnesium as Mg, mg/l, Max	30	100	IS:3025 Part 46
10.	Chloride as Cl, mg/l, Max	250	1000	IS:3025 Part 32
11.	Residual Free Chlorine, mg/l, Min*	0.2	1	IS:3025 Part 26
12.	Sulphate as SO_4, mg/l, max	200	400	IS:3025 Part 24
13.	Nitrate Nitrogen as NO_3, mg/l, Max	45	No relaxation	IS:3025 Part 34
14.	Fluoride as F, mg/l, Max	1.0	1.5	IS:3025 Part 60
15.	Total Iron as Fe, mg/l, Max	0.3	No relaxation	IS:3025 Part 53
16.	Coliform MPN/100 ml	Shall not be detectable in any 100 ml sample		Indian Standard IS:1622, Methods of Sampling and Microbiological Examination of water.
17.	Fecal Coliform, Presence/Absence	Shall not be detectable in any 100 ml sample		
18.	E. coli, Presence/ Absence	Shall not be detectable in any 100 ml sample		

*Applicable only when water is chlorinated

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As per Central Pollution Control Board of September 2013:

Table: General range of Important Chemical Constituents

Sr.No.	Constituent	Range		ISI Standards Desirable	Permissible
		Min	Max		
1	pH	7.43	8.90	6.5–8.5	No range
2	E.C/µS/cm at 25°C	110	3263	750	3000
3	Total Hardness (mg/l)	45	660	300	600
4	Ca(mg/l)	8	166	75	200
5	Mg(mg/l)	1.0	113	30	100
6	Na(mg/l)	5.0	506	-	-
7	K (mg/l)	1.0	180	-	-
8	Co_3(mg/l)	Nil	87	-	-
9	HCo_3(mg/l)	24	634	-	-
10	Cl(mg/l)	7.0	695	250	1000
11	So_4(mg/l)	0.5	192	200	400
12	No_3(mg/l)	0.4	249	45	100
13	F (mg/l)	0.04	1.6	1.0	1.5

1.6 Water Quality Samples

Quality of water Samples in terms of pH, TDS, EC. at KMC Language, University, U.P

Sr. No.	Place from where water sample collected	pH	Permissible Value	TDS	Permissible Value	Electrical Conductivity E.C./µS/cm at 25°C	Permissible Value
		1		2		3	
1	Guest House	7.4	6.5 - 8.5	154	500 ppm	304	200 to 800 µS/cm
2	Academy (Education Institution)	7.39		139		330	
3	Academic Civil Store	7.52		119		254	
4	Academic Civil Store (RO)	7.54		114		228	
5	Library	7.42		142		284	
6	Library RO	7.35		18		30	

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Sr. No.	Place from where water sample collected	pH	Permissible Value	TDS	Permissible Value	Electrical Conductivity E.C./µS/cm at 25°C	Permissible Value
		1		2		3	
7	Rani Laxmi Bai Girls Hostel	7.35		165		320	
8	Rani Laxmi Bai Girls Hostel (RO)	7.46		128		248	
9	V C House (RO)	7.29		89		166	
10	V C House (Tap Water)	7.28		155		346	
11	Neta ji Subhash Chandra Bose Boys Hostel (tap water)	7.44		153		314	
12	Neta ji Subhash Chandra Bose Boys Hostel (RO water)	7.22		92		185	
13	Mess	7.43		99		302	

1.7 Test Samples collected for testing of Bacteria presence & residual chlorine in water.

Sr. No	Sample collected from	Process adopted to test for bacteria	Result Presence of Bacteria	Chlorination in ppm IS:3025Part 26	Result
		4		5	
1	Guest House	It was tested through site sample kit provided by Prerana Laboratories	Negative	0.3	Safe For drinking
2	Academy (Education Institution)		Negative	0.2	Safe For drinking
3	Library		Negative	0.2	Safe For drinking
4	Rani Laxmi Bai Girls Hostel		Negative	0.2	Safe For drinking

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Sr. No	Sample collected from	Process adopted to test for bacteria	Result Presence of Bacteria	Chlorination in ppm IS:3025Part 26	Result
		4		5	
5	V C House (Tap Water)		Negative	0.4	Safe For drinking
6	Neta ji Subhash Chandra Bose Boys Hostel (tap water)		Negative	0.3	Safe For drinking

1.8 Test Sample of water collected for Copper, Sulphates and Fluorides.

Sr. No.	Sample	Hardness testing ppm	Copper ppm	Fluoride as F, Mg/L, Max	Permissible limit Mg/L	Presence of Sulphates Mg/L	Permissible Limit Mg/L
		6	7	8		9	
1	Guest House	100	Less than 0.2	0.65	1.0 mg/L IS 3025 Part 60	120	200 Acceptable limits IS:3025 Part 24
2	Academy (Education Institution)	100	Less than 0.2	0.63		135	
3	Library	100	Less than 0.2	0.65		110	
4	Rani Laxmi Bai Girls Hostel	100	Less than 0.2	0.67		146	
5	V C House (Tap Water)	100	Less than 0.2	0.66		118	

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Sr. No.	Sample	Hardness testing ppm	Copper ppm	Fluoride as F, Mg/L, Max	Permissible limit Mg/L	Presence of Sulphates Mg/L	Permissible Limit Mg/L
		6	7	8		9	
6	Neta ji Subhash Chandra Bose Boys Hostel (tap water)	100	Less than 0.2	0.65		152	

Analysis:

1. Test samples collected from **13 different sources** to check **pH, TDS & Electrical Conductivity (EC).**
2. **Test** samples collected **presence of bacteria & residual chlorine** at **6 different locations.**
3. Tests for copper, sulphates, hardness & fluorides were tested at 6 different locations.

A total of **9 parameters** of water were tested in the field test. **All the results were within permissible limits of Indian Standards.**

Observation:

1. University is very careful in providing clean & hygienic water to all campus.
2. All locations pH value, TDS, EC was found well within the limits. No sign of presence of Bacteria was noticed. In fact, **all water was chlorinated** & within a permissible limit **of 0.2 ppm to 0.4 ppm.**
3. It has been found that manual chlorination is being done.
4. To remove the human error, it is **recommended** to use **chlorinator plant.**

Water Quality Field Test:



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Water Quality test at KMC Language University, Lucknow

1.9 Ground water

Mineralization of ground water depends upon lithology, texture and nature of formation through which water moves. The ground water is generally used for domestic and irrigation purposes. The E.C. (specific conductivity) of ground water which is a degree of mineralization varies from 260 to 1120 micromhos / at 25°C and is well within permissible limits. In the city area Electrical conductivity varies between 325 to 1500 micro siemens / cm at 25°C. Carbonates are present in the form of bicarbonates and ranges between 146-390 mg/l. The result of shallow ground water. Table at below reveal that ground water is polluted and concentration of Nitrate more than 100 mg/l (maximum permissible limit) has been observed at Khajauli in Mohanlalganj block, & Kathwara in Bakshi-Ka-Talab block, all other constituents are well within permissible limits. Arsenic content in the district ranges between nil to 23 ppb & well within permissible limits. The concentration of Pesticide Residue in Lucknow district is well within permissible limit (P.F.A. 0.1 mg/l). Quality of deeper aquifer in the Lucknow is also suitable for domestic / irrigation purposes. But it is recommended to send samples to State Pollution Control Board approved Laboratory for testing.

CHEMICAL QUALITY OF SHALLOW GROUND WATER IN LUCKNOW DISTRICT, U.P.

Location	Type	Date of collection	E.C. microsiemens/cm. at 25°C	pH	Constituents in mg/l											Na %	SAR	Class
					CO_3	HCO_3	Cl	NO_3	SO_4	F	Ca	Mg	TH as $CaCo_3$	Na	K			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Block : MOHANLALGANJ																		
Moharlalganj	HP	09.6.07	580	7.85	0	366	18	2.7	5	0.69	32	34	220	47	6.5	44.76087	8.18165	C2S1
Nigohan	HP	09.6.07	470	7.80	0	305	11	1.1	-	0.44	20	32	180	34	0.0	39.53488	6.667949	C2S1
Khajauli	HP	19.6.07	560	7.75	0	217	14	206	30	0.05	14	33	150	70	3.9	61.1249	14.4399	
Nagram	HP	19.6.07	380	7.95	0	220	11	5.8	32	0.78	8	26	125	47	5.3	60.60255	11.39917	C2S1
Block : MAL 26																		
Mal	HP	16.6.07	560	8.05	0	256	32	1.4	48	0.52	36	29	210	46	4.2	43.57639	8.068934	C2S1
Block : BAKSHI KA TALAB																		
Behota	HP	12.6.07	410	7.95	0	268	14	0.9	7	0.79	32	33	215	16	4.7	24.15403	2.806586	C2S1
Gosai	HP	13.6.07	670	8.1	0	287	59	19	60	0.43	44	51	320	3.3	5.2	8.21256	0.478814	C2S1
Bakshi Ka Talab	HP	16.6.07	420	8.9	0	250	11	5.2	20	0.64	20	44	230	18	5.9	27.18999	3.181961	C2S1
Kathwara	HP	16.6.07	1120	8.05	0	195	121	150	96	0.15	56	88	500	41	5.8	24.5283	4.831696	C2S1
Itauja	HP	16.6.07	350	7.95	0	360	28	9.1	60	0.38	20	46	240	69	4.7	52.75591	12.01136	C2S1

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Location	Type	Date of collection	E.C. micromho/cm. at 25°C	pH	Constituents in mg/l											Na %	SAR	Class
					CO_3	HCO_3	Cl	NO_3	SO_4	F	Ca	Mg	TH as $CaCo_3$	Na	K			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Kumrawan	HP	16.6.07	590	8.10	0	323	11	1	62	0.31	16	54	260	23	8.4	30.96647	3.85771	C2S1
Block : KAKORI																		
Campbell Road	HP	14.6.07	300	7.90	0	207	7.1	2.4	-	0.58	8	26	125	25	5.2	47.6405	6.063391	C2S1
Rajajipuram	HP	14.6.07	480	7.90	0	214	50	19	10	0.27	12	41	20	30	5.6	40.18059	5.527715	C2S1
Khusalganj	HP	14.6.07	490	8.00	0	329	14	2.4	-	0.79	24	32	190	43	7.7	47.5164	8.126236	C2S1
Kakori	HP	16.6.07	350	7.90	0	207	11	1.5	20	0.41	12	33	165	17	4.0	31.81818	3.583935	C2S1
Malihu	HP	21.6.07	440	7.80	0	244	14	4	22	0.54	16	36	190	22	3.3	32.72962	4.314555	C2S1
Gaganamau	HP	21.6.07	350	7.95	0	195	14	16	10	0.65	16	34	180	13	3.5	24.81203	2.6	C2S1
Block : CHINHAT																		
Chinhat	HP	13.6.07	280	8.15	0	189	14	0.9	-	0.46	16	21	125	24	4.5	43.51145	5.579867	C2S1
Jafarpurwa	HP	14.6.07	420	8.00	0	287	7.1	2.7	8	0.65	40	24	200	245	5.2	79.63081	48.50029	C2S1
Indira Nagar	HP	19.6.07	480	8.05	0	195	43	56	10	0.16	36	32	220	20	4.9	26.80301	3.429972	C2S1
Gomti Nagar	HP	22.6.07	260	81	0	159	14	2.1	-	0.25	24	15	120	12	2.5	27.1028	2.717465	C2S1
Lucknow Tehsil	HP	21.6.07	820	7.8	0	305	78	47	45	0.29	20	44	230	95	6.4	61.30593	16.70379	C2S1
Mahanagar	HP	21.6.07	470	7.35	0	232	36	3.5	20	0.24	12	35	175	38	5.1	47.83574	7.838801	C2S1

Location	Type	Date of collection	E.C. micromho/cm. at 25°C	pH	Constituents in mg/l											Na %	SAR	Class
					CO_3	HCO_3	Cl	NO_3	SO_4	F	Ca	Mg	TH as $CaCo_3$	Na	K			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Block : SAROJINI NAGAR																		
Gandash	HP	14.6.07	680	8.10	0	366	18	12	25	0.48	68	21	255	49	7.30	38.74742	7.348411	C2S1
Pipansand	HP	14.6.07	570	7.85	0	293	28	13	20	0.62	32	36	230	31	7.26	36.00802	5.316456	C2S1
Ram	HP	14.6.07	240	7.75	0	148	7.1	4.8	-	0.42	20	23	80	14	2.70	37.95455	3.784324	C2S1
Bajpai	HP	14.6.07	480	7.85	0	293	14	2.8	12	0.52	14	40	200	33	7.10	42.61424	6.350855	C2S1
Narahi	HP	21.6.07	600	8.15	0	287	43	38	45	0.16	12	44	210	67	7.20	56.98925	12.66181	C2S2
Sangamnagar	HP	21.6.07	340	8.05	0	177	14	1.7	28	0.71	32	24	180	8	3.70	17.28213	1.511858	C2S1
Cantonment	HP	21.6.07	480	8.10	0	207	50	160	20	0.46	12	47	225	24	4.60	32.6484	4.418758	C2S1
Arya Nagar	HP	21.6.07	610	8.15	0	159	57	70	25	0.39	16	57	275	32	5.50	33.93665	5.296678	C2S1
Block : GOSAIGANJ																		
Arjunganj	HP	11.6.07	520	7.95	0	390	14	3.7	60	0.59	8	39	180	94	5.60	67.93997	19.39072	C2S3
Gosaiganj	HP	11.6.07	320	8	0	18.3	14	2.2	15	0.5	28	21	155	17	3.40	9.39481	3.434519	C2S1
Murshiganj	HP	11.6.07	440	8.05	0	293	7.1	1.1	5	0.72	20	41	220	0	5.10	29.15215	3.62143	C2S1
Ganganganj	HP	11.6.07	289	7.75	0	183	3.6	4	5	0.71	12	22	110	16	3.50	36.4486	3.80157	C2S1
Block : MALIHABAD																		
Rahimabad	HP	16.6.07	610	7.85	0	232	50	0.9	72	0.62	12	36	180	77	6.50	63.4981	15.73756	C2S2
Malihabad	HP	16.6.07	420	7.9	0	256	7.1	0.95	25	0.41	40	36	160	37	7.7	37.03397	6.002193	C2S1

1.9.1 Groundwater Quality

A. Color

Color is measured in Platinum Cobalt Scale. The color obtained in all the groundwater samples is 1 or less than 1.

B. pH

The pH value ranges between 6.5 and 8.5. The lowest value is Netaji Subhash Chandra Bose Boys Hostel (RO Water) i.e. 7.22 observed and whereas higher pH values were observed in samples in Academy Civil Store (RO Water) i.e. 7.54, all the groundwater samples showed good pH range or values. It is also observed that all the water samples lie in the range of 6.5 – 8.5 prescribed by Indian Standards for Drinking Water.

C. Turbidity

Turbidity is measured in the Nephelometric Turbidity Unit (NTU). The turbidity for nearly all the samples remained less than 1 NTU, the turbidity lies in the range 2 – 4.5 NTU.

D. Electrical Conductivity

Electrical conductivity (EC) is a useful tool to evaluate the purity of water. Maximum EC is recorded in Hon'ble VC House, Tap water (346 µ mhos/cm) and **the minimum EC at Library, RO water (30 µmhos /cm).**

E. Total Dissolved Solids

The **Total Dissolved Solids (TDS)** of the water samples ranged from **18 ppm to 165 ppm.** TDS value range between 142 ppm to 165 ppm is shown by sample GW, whereas **TDS of RO water ranged between 18 ppm to 128 ppm.**

F. Quality of ground water for drinking

The E.C. (specific conductivity) of ground water which is a degree of mineralization varies from 260 to 1120 micromhos / at 25°C and is well within permissible limits. In the city area Electrical conductivity varies between 325 to 1500 micro siemens / cm at 25°C. Carbonates are present in the form of bicarbonates and ranges between 146-390 mg/l.

1.9.2 Quality of water for irrigation

High SAR is not good for irrigation as it leads to sodium hazard. Water samples in the district generally fall in C2 S1, C3 S1 and C4 S1 classes of US salinity diagrams. However, ground water in the district is generally safe for irrigation but a proper drainage system is required where EC is more than 1500 µs/cm.

Drainage System at KMC Language University

According to International Journal of preventive medicine research Potential Health Impacts of Hard Water PMCID: PMC3775162 PMID: 24049611, Int J Prev. Med. 2013 Aug; 4(8): 866–875.

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A. pH value:

A pH of 7 is considered neutral. That "seven" number is considered neutral or balanced between acidic and alkaline. If water is below 7 on the pH scale, it's "acidic." If it's higher than 7, it's "alkaline." EPA guidelines state that the pH of tap water should be between 6.5 and 8.5.

Acidic water with a pH of less than 6.5 is more likely to be contaminated with pollutants, making it unsafe to drink. It can also corrode (dissolve) metal pipes.

Many municipal water suppliers voluntarily test the pH of their water to monitor for pollutants, which may be indicated by a changing pH. When pollutants are present, water companies treat their water to make it safe to drink again.

B. Alkaline water

Alkaline water has become a popular drinking water choice over the past few years. Some people say that drinking slightly alkaline water — with a pH between 6.5 and 8.5 — can improve your health.They say it may make you age more slowly, maintain a healthy pH in your body, and block chronicdisease like cancer.

C. Electrical Conductivity of Water

Pure water is not a good conductor of electricity. Ordinary distilled water in equilibrium with carbon dioxide of the air has a conductivity of about 10×10^{-6} $W^{-1}*m^{-1}$ (20 dS/m). Because the electrical current is transported by the ions in solution, the conductivity increases as the concentration of ions increases.

Electrical conductivity (EC) is a measurement of water's ability to conduct electricity. EC is related to water temperature and the total concentration, mobility, relevance and relative concentration of ions. Higher EC means more electrolytes in the water.

The reason that the conductivity of water is important is because it can tell you how many dissolved substances, chemicals, and minerals are present in the water. Higher amounts of these impurities will lead to higher conductivity.

Types of water	Conductivity Value
Pure distilled and Deionized water	0.05 µS/cm
Seawater	50 mS/cm
Drinking water	200 to 800 µS/cm.
Rain or Snow water	2 to 100 µS/cm

µS/cm means micro-Siemens per centimeter, a measure of electrical conductivity; it is equal to µmhos/cm; BASIS FOR CHANGE: The Department proposes to add this definition, which is the

measure of conductivity in the International System of units, and to substitute it for μ mhos/cm throughout the Standards. 1 PPM is equal to 1.56 micro-S/cm.

D. Sulphates in drinking water

People who are not used to drinking water with high sulfate can get diarrhea and dehydration from drinking the water. Infants are often more sensitive to sulfate than adults. To be safe, only use water with a sulfate level lower than 500 milligrams per liter (mg/L) to make infant formula. Older children and adults may get used to high sulfate levels after a few days.

E. Presence of Copper in water

How to Protect oneself and the Family Drinking water with more than 1,300 micrograms of copper per liter of water (μg/L) can be a health risk for everyone. Infants and people with Wilson's

disease may need water with an even lower level of copper to stay safe. Copper can get into drinking water as it passes through plumbing system. Over time, plumbing parts with copper in them usually build up a natural coating that prevents copper from being dissolved into the water. Plumbing systems with copper parts fewer than three years old usually have not had time to build up this protective coating.

F. Presence of Fluorides in drinking water

Fluoride prevents tooth decay by making teeth stronger and more resistant to acid attacks. It also helps with slowing down or stopping the decay process. When fluoride levels in water are at optimal levels, it helps to protect teeth against cavities. Excess amounts of fluoride ions in drinking water can cause dental fluorosis, skeletal fluorosis, arthritis, bone damage, osteoporosis, muscular damage, fatigue, joint-related problems, and chronicle issues.

1.10 Water Quantity

1.10.1 According to the report

According to STATE ENVIRONMETAL PLAN Uttar Pradesh Department of Environment Government of Uttar Pradesh, Uttar Pradesh is a state located in northern India and is one of the most populous states in the country. The state is crisscrossed by several major rivers, including the Ganges, Yamuna, and Ghaghara, as well as several smaller rivers and tributaries. These rivers are the primary source of water for the state and are used for irrigation, drinking water supply, and industrial purposes. According to the Central Ground Water Board, the state has a total annual replenishable groundwater resource of 63.60 billion cubic meters (BCM), of which 36.48 BCM is the net annual groundwater availability. The state also has several large reservoirs and dams, including the Tehri Dam on the Bhagirathi River, which provides hydro-electric power and water for irrigation and drinking water supply. Overall, Uttar Pradesh is a water-rich state, but the availability and distribution of water vary across the state and can be influenced by factors such as population growth, climate change, and water management practices.

1.10.2 Methodology for reduction in water consumption

Here are a few methods that can reduce the usage of water inside buildings:

- **Rainwater Harvesting:** Rainwater Harvesting is a method that can be quite easily implemented.
- **Water Metering:** Measure the quantity for reduction of consumption.
- **Pressure reducing valves:** Is another alternative for reducing water consumption.
- **Water-saving showerheads:** In place of bucket, using shower is a good idea.
- **Grey water Recycling system:** To be used for non-drinking purpose such as washing, irrigation etc.
- **Smart irrigation systems:** Drip irrigation & such other practices can be adopted.
- **Water-efficient toilets:** Water efficient fixtures to be used.
- **Float valves:** On the tanks above the quarters/ homes and buildings.

1.10.3 Broadly speaking, you can reduce your direct water footprint by

- Turning off the tap while brushing one's teeth.
- Using water-saving toilets.
- Installing a water-saving shower head.
- Taking shorter showers.
- Only wash clothes when necessary.
- Fixing household leaks.
- Using less water in the garden and when cleaning. Preferably use recycled water.
- Adopting drip irrigation methods.

1.10.4 Measure daily consumption data

As per Central Ground Water Authority As a general rule the following rates per capita per day may be considered for domestic and nondomestic needs: a) For communities with populations up to 20,000: b) For communities with : 100 to 135 lphd population 20,000 to 100,00 together with full flushing system c) For communities with population: 150 to 200 lphd above 100,000 together with full flushing system Note—The value of water supply given as 150 to 200 liter per head per day may be reduced to 135 liter per head per day for houses for Medium Income Group (MIG) and Lowe Income Groups (LIG) and Economically Weaker Section of Society (EWS), depending upon prevailing conditions and availability of water. Out of the 150 to 200 liters per head per day, 45 liters per head per day may be taken for flushing requirements and the remaining quantity for other domestic purposes.

1.10.5 Measure the pumping hours

The best way to control the water is to measure daily water demand which is being extracted from the source. For this we can use Water Meter and Energy meter. Water meter is for water consumption and the Energy meter is to check the energy consumed. Check it daily. Find out the leakages and ultimately check where water consumption is more. At each overhead tank we should provide a float valve so that unnecessary waste of water and energy shall be reduced. See the possibility if water consumption can be reduced. A periodical analysis will reduce the water and energy consumption to an optimum level.

- Recharging of ground water through RWH
- Observe the Ground water table before and after monsoon.
- Please observe the groundwater recharge position (Level whether increase or decrease). This will give an extra credit for achieving the ground water recharge to theCollege.
- Participation of student groups should be made to further increase their awareness towards water conservation.

1.10.6 University water resources

The major resource for the water in the university is a self-reliant water boring system installed on the campus. There are 8 numbers of electric motors installed of 10 HP, 7.5 HP and rest are 6 nos. of 1.5 HP. Total water drawn in a day is 520 kL.

Submersible pump of 10 HP at KMC Language University, Lucknow

1.10.7 Water consumption in the University

From the data collected for the water audit of KHWAJA MOINUDDIN CHISHTI LANGUAGE UNIVERSITY the water distribution and water consumption pattern are noticed as follows for daily consumption of 520 kL of water.

Analysis:

1. Total daily consumption of university is 520 kL. This includes all water consumption.
2. Out of Total land area, 70% of land is soil based out of which 50% of the total area is greenery.
3. In this way most of the water is going back to ground water.
4. The university has an excellent Rainwater Harvesting system just in front of the gate.
5. Most of the rainwater of the building roofs, through the rainwater pipe & pucca drainage system gets collected in RWH.

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Observation:

1. The university is recommended to install water meters for checking the consumption of water.
2. The university shall get the details of increase in Ground water table from Ground Water department in last 4–5-year time.
3. This will provide the university's contribution toward ground water recharge.

1.11 Yearly Average Water Consumption at KHWAJA MOINUDDIN CHISHTI LANGUAGE UNIVERSITY

Sr. No.	Sector	Total Daily Use (in liter)	Total Daily Use (in kL)	Total Monthly Use (in kL)	Total Yearly Use for 9 months (in kL)	Percentage %
1	Academic Block	42000	42	1260	11340	8.08
2	Admin Block	18000	18	540	4860	3.46
3	Guest House	18000	18	540	4860	3.46
4	Student Facility Center	6000	6	180	1620	1.15
5	RUSA Building	40000	40	1200	10800	7.69
6	Gymnasium	4000	4	120	1080	0.77
7	Library	8000	8	240	2160	1.54
8	Type - II quarter	12000	12	360	3240	2.31
9	Type - III quarter	12000	12	360	3240	2.31
10	Type - IV quarter	24000	24	720	6480	4.62
11	Boys Hostel	18000	18	540	4860	3.46
12	Girls Hostel	14000	14	420	3780	2.69
13	V.C. House	4000	4	120	1080	0.77
14	F.O. House	2000	2	60	540	0.38
15	Registrar	2000	2	60	540	0.38
16	Irrigation	58000	58	1740	15660	11.15
17	Washing	48000	48	1440	12960	9.23
18	Cleaning	27000	27	810	7290	5.19
19	Gardening	26000	26	780	7020	5.00
20	Mess	44000	44	1320	11880	8.46
21	Unaccounted Leakage	93000	93	2790	25110	17.88

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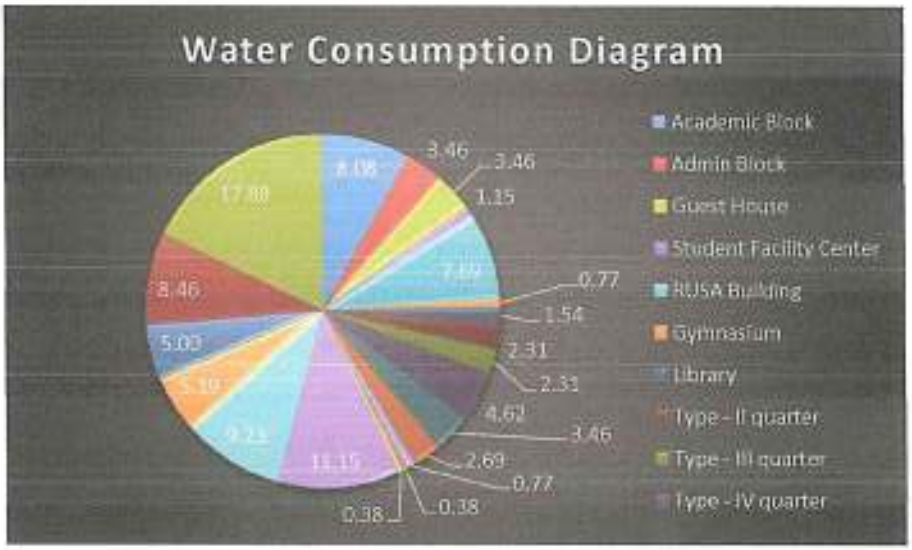
Sr. No.	Sector	Total Daily Use (in liter)	Total Daily Use (in kL)	Total Monthly Use (in kL)	Total Yearly Use for 9 months (in kL)	Percentage %
Total		520000	520	15600	140400	100.00



For Irrigation, cleaning, washing & gardening 159 kL of water is being consumed. These can be used through the grey water (not black water) coming from Hostels, mess, buildings & quarters etc. Thus, we can save extra withdrawal of water.

Analysis:

1. Most of the water is being consumed for irrigation, cleaning, washing & gardening purposes.
2. Out of 520 kL of water 159 kL is being used for these purposes.
3. Moreover, the water meter will be helpful in checking the leakage areas & finally plug.

Observation:

1. Idea of drip irrigation as planned by university authorities to be followed in future.
2. Initially near 10 HP & 7.5 HP pump, two water meters (One at each pump) to be provided and observed for a year.
3. This may also reduce energy conservation due to less operation of pumps.

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Sufiam 3.0 Project Launched by India (For Grey water) (Govt. of India project)

Technology Options for Greywater Management

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Yearly Average Water Consumption at KHWAJA MOINUDDIN CHISHTI LANGUAGE UNIVERSITY

The Figure shows the total percentage of water consumed by all the sectors of KMC Language University, Lucknow. The figure shows that Irrigation, Washing, Mess, Academic Block and RUSA building as the major sources of water utilization comprising 11.15%, 9.23%, 8.46%, 8.08% and 7.69% respectively. Further the loss is about 17.88% i.e., a very huge in amount. So, university should install water meter for proper monitoring on water consumption.

1.12 *Sustainable Water Practices*

1.12.1 Watershed Management Practices

University has taken many initiatives in water conservation and management of water available on the campus. Now, the university is self-reliant through decentralized water conservation and management practices.

1.12.2 Wastewater Filtration Tank

The University has a huge campus with its administrative setup and there is a lot of wastewaters collected from different areas and other open areas which are disposed of in the tank. The university is required to construct a Mini Water Filtration Tank/ recycling on the campus. This filter house is used to filter the wastewater regularly. This water is utilized for further trees and plants in the University campus as self-filtered water throughout the year.

1.13 Rainwater Harvesting Units

The underground water table is decreasing day by day & minute by minute. There is no attempt to replenish the groundwater table with rainwater during the monsoon & other rainy days. Rainwater harvesting is the simple collection or storing of water through scientific techniques from the areas where the rain falls. It involves the utilization of rainwater for domestic or agricultural purposes. The method of rainwater harvesting has been in practice since ancient times. It is far from the best possible way to conserve water and awaken society towards the importance of water. The method is simple and cost-effective too. It is especially beneficial in the areas which face the capacity of water. We can see that the People usually make complaints about the lack of water. During the monsoons, lots of water goes waste into the gutters. And this is when Rainwater Harvesting proves to be the most effective way to conserve water. We can collect the rainwater into the tanks and prevent it from flowing into drains and being wasted. It is practiced on a large scale in metropolitan cities. Rainwater harvesting comprises the storage of water and water recharging through the technical process.

- Non-teaching staff or peons in the concerned section should take responsibility for monitoring the overflow of water tanks.
- A Large amount of water is wasted during the practical process in science laboratories. Designs of small water recycling systems help to reuse water.

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- Producing distilled water in the laboratories required a large amount of water to distillate. To reduce 1 liter of distilled water required more than 33 liters of water. To avoid more wastage, the University should design a common distillation plant for the Science Department.
- Reduce chemical waste formation in the Chemistry laboratory; adopt the principles of green chemistry to reduce chemical waste.
- Pipes, overhead tanks, and plumbing systems should be maintained properly to reduce leakages and wastages of water.
- University should install its own Sewage Treatment Plant (STP). By doing so there will be a great reduction in water usage, as the water after treatment can be used for various purposes in the University.
- As University is already having multiple units of Rainwater Harvesting Units. It will certainly add value to meet the mission of water conservation. And help in increasing the ground water table.

Rainwater Harvesting Pit at KMC Language University, Lucknow.

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2.0 Air Quality Audit

2.1 *National Ambient Air Quality Program (NAAQM)*

Central Pollution Control Board, New Delhi initiated National Ambient Air Quality Monitoring program in the year 1984 to get a spatial and temporal variation of ambient air concentrations for a wide range of pollutants that are considered relevant for evolving strategic management plan. The program was subsequently renamed NAMP (National Air Quality Monitoring Program). Under NAMP, three air pollutants viz Sulphur dioxide (SO_2), Nitrogen dioxides (NO_2), and Repairable Suspended Particulate Matter (RSPM/PM10) have been identified for regular monitoring at three locations. Monitoring of pollutants has been carried out for 24 hours (4-hourly sampling for gaseous pollutants and 8-hourly sampling for particulate matter) as per CPCB monitoring protocol. One Repairable Dust Sampler (RDS) machine is installed at the Main Gate of the College Campus which monitors the changes in ambient air quality during 24- hours. KMCLU monitors air pollution regularly under the National Ambient Air Quality Monitoring Program, Central Pollution Control Board, New Delhi.

The objectives of air quality standards are:

- To indicate the levels of air quality necessary with an adequate margin of safety to protect the public.
- health, vegetation, and property.
- To assist in establishing priorities for abatement and control of pollutant level.
- To provide uniform yardstick for assessing air quality at national level.
- To indicate the need and extent of the monitoring programs.

City	Lucknow
State	Uttar Pradesh
Location	26.8467° N latitude and 80.9462° E longitude 123 meters (404 feet) above sea level.
Area	2528 km^2
Population	39,45,000

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Climate	Lucknow experiences a humid subtropical climate characterized by hot summers, cool winters, and moderate monsoons. Here's a breakdown of the different seasons: 1. **Summer (March to June):** Summers in Lucknow are hot and dry, with temperatures ranging from 30°C (86°F) to 45°C (113°F). May is usually the hottest month. Heat waves with temperatures above 40°C (104°F) are not uncommon during this period. 2. **Monsoon (July to September):** Lucknow receives the majority of its rainfall during the monsoon season. The city experiences moderate to heavy showers, often accompanied by thunderstorms. The average rainfall during this period is around 900-1,000 mm (35-39 inches). 3. **Autumn (October to November):** The post-monsoon season brings relatively cooler temperatures to Lucknow. Days are pleasant with temperatures ranging from 20°C (68°F) to 30°C (86°F), while nights are cooler. 4. **Winter (December to February):** Winters in Lucknow are cool and foggy. Temperatures during this season range from 8°C (46°F) to 25°C (77°F). Foggy conditions are common, especially in January, which can sometimes lead to disruptions in transportation.
Geography	Lucknow is located in the central part of the Indian state of Uttar Pradesh. The city is situated on the northern bank of the Gomti River, which flows through its heart. Here are some key geographical features and aspects of Lucknow: 1. **Rivers:** The Gomti River is the major water body in Lucknow. It is a tributary of the Ganga (Ganges) River, which is one of the most important rivers in India. The Gomti River divides the city into two parts, with the old city located on the western bank and the newer areas on the eastern bank. 2. **Topography:** Lucknow features a relatively flat terrain, typical of the Gangetic plains. The land is mostly characterized by fertile alluvial soil, making it suitable for agriculture. 3. **Parks and Gardens:** Lucknow is known for its numerous parks and gardens. The city boasts well-maintained green spaces, such as the famous Hazratganj Park, Ambedkar Memorial Park, and Janeshwar Mishra Park, which is one of the largest parks in Asia. 4. **Urbanization:** Over the years, Lucknow has experienced rapid urbanization and expansion. The city has grown beyond its historical core, with the development of new residential areas, commercial centers, and industrial zones. 5. **Surrounding Districts:** Lucknow is surrounded by several districts, including Barabanki to the east, Unnao to the south,

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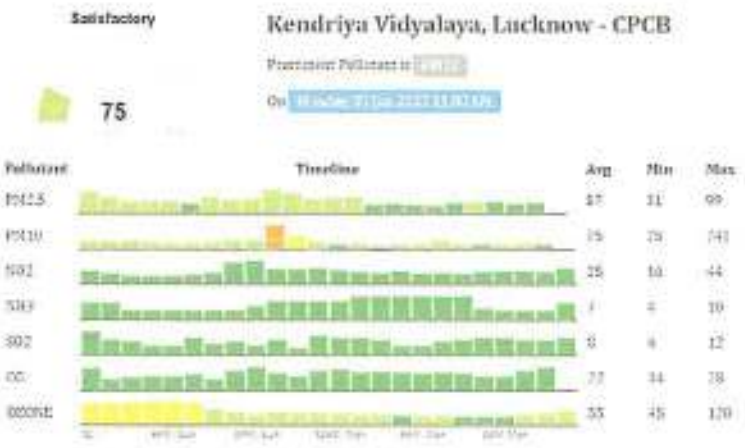
	Hardoi to the west, and Sitapur to the north. These districts are part of the larger Gangetic plain region.
Industries	Lucknow, the capital city of Uttar Pradesh in India, is known for its diverse industrial sectors. Here are some of the prominent industries in Lucknow: 1. Textile Industry 2. Pharmaceutical Industry 3. Automotive Industry 4. Food Processing Industry 5. Information Technology (IT) and Information Technology Enabled Services (ITES) 6. Handicrafts and Artisans 7. Education and Research Institutions 8. Retail and Hospitality
Air Quality Stations	6
Air Quality Trend	The city's air quality has worsened drastically once again and so much so that it has even surpassed the high pollution levels recorded in the pre-Covid times. The hazardous $PM_{2.5}$ concentration in the pre-monsoon season has increased by 43.9% as compared to last year. Moreover, the $PM_{2.5}$ concentration levels were 10% more than in 2019.

Source: CPCB: NATIONAL AMBIENT AIR QUALITY STATUS ON 05TH & 06th June 2023 Near KMC, Language University, Lucknow



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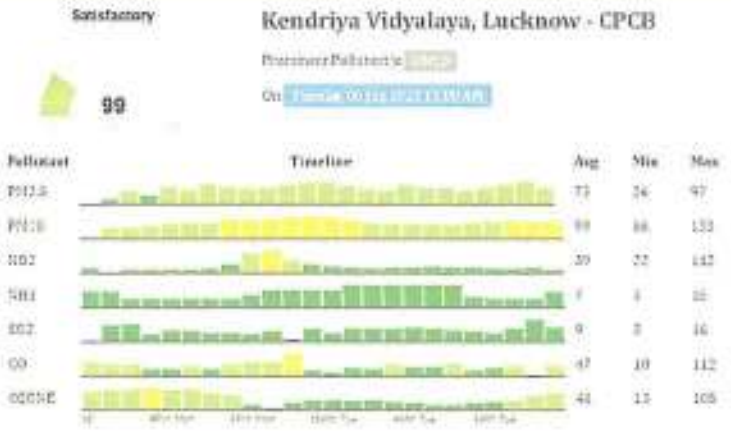

2.2 Sulphur dioxide (SO_2)

SO_2 is the chemical compound produced by volcanoes and in various industrial processes and is also a precursor to particulates in the atmosphere.

2.3 Oxides of Nitrogen (NOx)

Oxides of nitrogen are a generic term for a group of highly reactive gases that contain nitrogen and oxygen in varying amounts. NOx is emitted as nitrogen oxide (NO) which is rapidly oxidized to more toxic nitrogen dioxide (NO_2) Nitrogen dioxide (NO_2) is a reddish-brown toxic gas with a characteristic sharp, biting odor and is a prominent air pollutant.

2.4 Carbon monoxide (CO)

CO poisoning occurs when carbon monoxide builds up in your bloodstream. When too much carbon monoxide is in the air, your body replaces the oxygen in your red blood cells with carbon monoxide. This can lead to serious tissue damage, or even death. Carbon monoxide is a colorless, odorless, tasteless gas produced by burning gasoline, wood, propane, charcoal, or other fuel. Improperly ventilated appliances and engines, particularly in a tightly sealed or enclosed space, may allow carbon monoxide to accumulate to dangerous levels.

2.5 Carbon Dioxide (CO_2)

Carbon dioxide (CO_2) is an important heat-trapping gas, or greenhouse gas, that comes from the extraction and burning of fossil fuels (such as coal, oil, and natural gas), from wildfires, and from natural processes like volcanic eruptions.

Since the beginning of industrial times (in the 18th century), human activities have raised atmospheric CO_2 by 50% – meaning the amount of CO_2 is now 150% of its value in 1750. This is greater than what naturally happened at the end of the last ice age 20,000 years ago.

The animated map shows how global carbon dioxide has changed over time. Note how the map changes colors as the amount of CO_2 rises from 365 parts per million (ppm) in 2002 to over 400 ppm currently. ("Parts per million" refers to the number of carbon dioxide molecules per million molecules of dry air.) These measurements are from the mid-troposphere, the layer of Earth's atmosphere that is 8 to 12 kilometers (about 5 to 7 miles) above the ground.

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2.6 Formaldehyde (HCHO) as a Hazardous Air Pollutant

Formaldehyde (HCHO) is the most important carcinogen in outdoor air among the 187 hazardous air pollutants (HAPs) identified by the U.S. Environmental Protection Agency (EPA), not including ozone and particulate matter. However, surface observations of HCHO are sparse and the EPA monitoring network could be prone to positive interferences. Here we use 2005–2016 summertime HCHO column data from the OMI satellite instrument, validated with high-quality aircraft data and oversampled on a 5×5 km^2 grid, to map surface air HCHO concentrations across the contiguous U.S. OMI-derived summertime HCHO values are converted to annual averages using the GEOS-Chem chemical transport model. Results are in good agreement with high-quality summertime observations from urban sites (−2% bias, $r = 0.95$) but a factor of 1.9 lower than annual means from the EPA network. We thus estimate that up to 6600–12 500 people in the U.S. will develop cancer over their lifetimes by exposure to outdoor HCHO. The main HCHO source in the U.S. is atmospheric oxidation of biogenic isoprene, but the corresponding HCHO yield decreases as the concentration of nitrogen oxides (NOx ≡ NO + NO_2) decreases. A GEOS-Chem sensitivity simulation indicates that HCHO levels would decrease by 20–30% in the absence of U.S. anthropogenic NOx emissions. Thus, NOx emission controls to improve ozone air quality have a significant benefit in reducing HCHO-related cancer risks.

2.7 Total Volatile Organic Compounds (TVOC)

Definition of TVOC There are different classifications of Total Volatile Organic Compounds (TVOC). Most used is the World Health Organization (WHO) definition1, which differentiates the volatility (or boiling point) of organic compounds to define Very Volatile Organic Compounds (VVOCs), Volatile Organic Compounds (VOC) and Semi-Volatile Organic Compounds (SVOCs). This usually involves the molecular length of the carbon structure, i.e., the number of carbon atoms in the chemical formula. The summation of all VOCs is called the Total Volatile Organic Compounds (TVOC). The volume of gas per classification and the sum of all gases (TVOC) are important reflections of the relevant organic compounds found in indoor air. Classifications of Volatile Organic Compounds Class Name Typical Boiling Point [°C] VVOC Very Volatile Organic Compound < Typical Number of Carbon Molecules Example 0 to (50 VOC Volatile Organic Compound (50 — 100) < C6 Formaldehyde 100) to (240 SVOC Semi Volatile Organic Compound (240 — 260) C6 to C16 Benzene 260) to (380 TVOC Total Volatile Organic Compounds400) > C16 Dissonance phthalate Sum of all TVOC as an Indicator for Indoor Air Quality compounds. The TVOC is considered an important indicator for indoor hygiene and indoor air quality (IAQ). In addition to serious health concerns, there is the psychological aspect: homes, offices, and other environments that smell clean typically seem more welcoming than areas with foul odors caused by organic compounds.

Common Volatile Organic Compounds in Indoor Spaces and their Sources Volatile organic compounds are pervasive both outdoors and indoors. Depending on the interior decoration and usage, a room might be polluted with different organic compounds at the same time. Many volatile organic compounds have a chemical similar structure, which makes it difficult or sometimes impossible to distinguish between these in a VOCgas mixture. More information on detection of the TVOC can be found in Renesas' Application Note – TVOC Sensing. VOCs that Contribute to Poor Air Quality and their Sources Chemical TVOC Class Chemical Examples Source Examples Alkanes n Butane, n Pentane, n Hexane, n n-Octane, Cyclohexane Heptane, Aerosol spray products for some paints, cosmetics, automotive exhaust products, leather treatments, paint thinner, oil based paints, spot removers, aerosol/liquid insect pest products, mineral spirits, furniture polishes Alkenes Isobutylene, Ethylene Solvents, fruit ripening, pest control, rubber production Aromatics BTEX (Benzene, Toluene, Ethylbenzene, Xylene), Dichlorobenzene, Naphthalene, Styrene Tobacco smoke, moth balls, moth flakes, deodorizers, air fresheners,

automotive exhaust products, paint thinner, oil based paints, aerosol/liquid insect pest products, mineral spirits, furniture polishes, rigid foam products, contact cement, model cement, tar board, plasticizer.

2.8 Particulate Matter (PM)

PM stands for particulate matter (also called particle pollution): the term for a mixture of solid particles and liquid droplets found in the air. Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others are so small they can only be detected using an electron microscope.

Particle pollution includes:

a) PM_{10}: inhalable particles, with diameters that are generally 10 micrometers and smaller; and

b) $PM_{2.5}$: fine inhalable particles, with diameters that are generally 2.5 micrometers and smaller.

c) How small is 2.5 micrometers? Think about a single hair of head. The average human hair is about 70 micrometers in diameter – making it 30 times larger than the largest fine particle.

2.8.1 Particulate Matter 10 (PM_{10})

Using a nationwide network of monitoring sites, EPA has developed ambient air quality trends for particle pollution, also called Particulate Matter (PM). PM_{10} describes inhalable particles, with diameters that are generally 10 micrometers and smaller. Under the Clean Air Act, EPA sets and reviews national air quality standards for PM. Air quality monitors measure concentrations of PM throughout the country. EPA, state, tribal and local agencies use that data to ensure that PM in the air is at levels that protect public health and the environment. Nationally, average PM_{10} concentrations have decreased over the years.

2.8.2 Particulate Matter 2.5 ($PM_{2.5}$)

Fine particulate matter ($PM_{2.5}$) is an air pollutant that is a concern for people's health when levels in air are high. $PM_{2.5}$ are tiny particles in the air that reduce visibility and cause the air to appear hazy when levels are elevated. Outdoor $PM_{2.5}$ levels are most likely to be elevated on days with little or no wind or air mixing. The New York State Departments of Health (DOH) and Environmental Conservation (DEC) alert the public by issuing a $PM_{2.5}$ Health Advisory when $PM_{2.5}$ concentrations in outdoor air are expected to be unhealthy for sensitive groups.

The term fine particles, or particulate matter 2.5 ($PM_{2.5}$), refers to tiny particles or droplets in the air that are two- and one-half microns or less in width. Like inches, meters and miles, a micron is a unit of measurement for distance. There are about 25,000 microns in an inch. The widths of the larger particles in the $PM_{2.5}$ size range would be about thirty times smaller than that of a human hair. The smaller particles are so small that several thousands of them could fit on the period at the end of this sentence.

Particles in the $PM_{2.5}$ size range can travel deeply into the respiratory tract, reaching the lungs. Exposure to fine particles can cause short-term health effects such as eye, nose, throat and lung irritation, coughing, sneezing, runny nose, and shortness of breath. Exposure to fine particles can also affect lung function and worsen medical conditions such as asthma and heart disease. Scientific studies have linked increases in daily $PM_{2.5}$ exposures with increased respiratory and cardiovascular hospital admissions, emergency department visits and deaths. Studies also suggest

that long term exposure to fine particulate matter may be associated with increased rates of chronic bronchitis, reduced lung function and increased mortality from lung cancer and heart disease. People with breathing and heart problems, children and the elderly may be particularly sensitive to $PM_{2.5}$.

Creating Dust and thus increasing $PM_{2.5}$ & AQI

2.9 Ozone (O_3)

Ozone is a pale blue gas, soluble in water and nonpolar solvents with a specific sharp odor somewhat resembling chlorine bleach. Ozone is a secondary pollutant formed in the atmosphere by the reaction between oxides of nitrogen and volatile organic compounds (VOCs) in the presence of sunlight. Peak O3 levels occur typically during the warmer times of the year.

2.10 Lead (Pb)

Lead is a bright silvery soft, dense, ductile, highly malleable, bluish-white metal that has poor electrical conductivity and is highly resistant to corrosion.

2.11 Ambient Air Quality

In the KMC Language University, Lucknow Campus Area Presence of Pollution in Air Quality Testing at KMCLU, Lucknow on 5th & 6th June 2023

S. NO.	LOCATION	CARBON MONOXIDE (CO)	CARBON DIOXIDE (CO_2)	FORMALDEHYDE (HCHO)	TOTAL VOLATILE ORGANIC COMPOUNDS (TVOC)
1	Guest House	2	484	0.015	0.2
2	Abul Kalam Azad Building	16	524	0.027	0.3
3	Abul Kalam Azad Building (Dean Faculty of legal study)	10	519	0.019	0.2
4	Academic Block outside	15	557	0.033	0.4
5	Conference Room	15	528	0.025	0.2
6	Admin Block	2	460	0.003	0
7	Library	13	523	0.02	0.2
8	Rani Laxmi Bai Girls Hostel	13	524	0.023	0.2
9	Neta ji Subhash Chandra Bose Boys Hostel	12	524	0.019	0.2
10	VC House Outside	10	524	0.025	0.3
11	VC House Inside	11	517	0.017	0.2
12	Mess	120	755	0.139	1.8
13	RUSA Building	16	532	0.027	0.3
14	Gymnasium	11	523	0.023	0.2

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S. NO.	LOCATION	CARBON MONOXIDE (CO)	CARBON DIOXIDE (CO2)	FORMALDEHYDE (HCHO)	TOTAL VOLATILE ORGANIC COMPOUNDS (TVOC)
15	Outside the campus	239	1089	0.229	2.3

Carbon Mono oxide is higher outside the campus area due to burning of different types of materials including the fuel. The measurement was performed near Lucknow – Sitapur highway just 200 meters (Approx.) from the campus.

2.12 AQI Chart

S. NO.	LOCATION	AQI	PM 1.0	PM 2.5	PM 10	PC > 0.3	PC > 1.0	PC > 5.0	PC > 0.5	PC > 2.5	PC > 10
1	Guest House	40	27	39	47	6537	269	7	1380	24	2
2	Abul Kalam Azad Building	39	28	40	47	7523	262	7	1350	21	2
3	Abul Kalam Azad Building (Dean Faculty of legal study)	35	24	35	41	5690	235	3	1350	15	1
4	Academic Block outside	37	26	37	43	5910	188	2	1041	8	0
5	Conference Room	29	20	30	34	4185	208	2	1004	11	0
6	Admin Block	34	24	34	41	5390	203	7	1305	17	3
7	Library	39	27	38	44	6432	271	4	1492	14	1
8	Rani Laxmi Bai Girls Hostel	41	29	41	51	6569	280	5	1469	22	2
9	Neta ji Subhash Chandra Bose Boys Hostel	40	28	41	48	6048	264	5	1529	28	2

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S. NO.	LOCATION	AQI	PM 1.0	PM 2.5	PM 10	PC > 0.3	PC > 1.0	PC > 5.0	PC > 0.5	PC > 2.5	PC > 10
10	VC House Outside	36	25	36	42	6001	222	5	1364	18	1
11	VC House Inside	37	26	38	45	6593	265	4	1570	26	1
12	Mess	51	134	50	60	8212	355	8	1996	24	2
13	RUSA Building	39	27	39	46	6345	252	6	1508	25	2
14	Gymnasium	40	27	40	47	6477	297	5	1454	20	2
15	Outside the campus (Lucknow – Sitapur Highway)	235	159	235	136	29999	1505	9	4540	27	1

All the buildings except "Mess" have shown AQI less than 40 & it comes under excellent AQI. Mess area AQI has been found to be 51. Also, CO found 120, CO_2 found 755. In mess, need to installation of more Exhaust fan. Near university campus few meters away national highway air quality is worse than the university's campus area. Overall university maintain good air quality.

NOTE: Total 14 parameters of Ambient Air Quality was checked at 15 locations in whole campus area and at the outside the campus area for comparatively study. At mess area AQI was high, rest other places all parameters were within limits.

The Central Pollution Control Board, New Delhi has set guidelines to monitor and analyze the air pollution quality parameters. The trees covered on the campus are the leading sources to absorb CO_2 and release enough fresh O_2 across the University Campus. The result shows that KMC Language University Campus's air quality status is good as compared to other locations. It is identified that university campus is a green campus. University campus observed minimum air pollution as compared to other Ambient Air Pollution Centers located in different parts of the city. More than 50% area of the University is full of lush greenery which has contributed much for its achievement over such an excellent AQI.

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2.13 Air Quality Field Test

Field test conducted for different parameters of Air Ambient Quality at KMC Language University, Lucknow

Analysis:

1. Ambient air Quality monitoring was checked at 14 places in KML University campus & 1 Location out side the University campus (Near Sitapur – Lucknow highway, just 200 meters from the Campus).
2. Total 3 parameters for particle Sizes, 6 parameters of Particle Counts and 1 related to AQI was checked.
3. 4 different type of gases were checked (CO, CO_2, HCHO, TVOC)
4. NO_X & SO_X were not checked as in university campus already very few vehicles were moving.

Observation:

1. Excellent Air Quality was found in the whole campus. (AQI below 50 at all places)
2. Just 200 meters away was Lucknow – Sitapur Road, where AQI was much above. (AQI was 235)
3. $PM_{2.5}$ at Sitapur – Lucknow highway was found to be 235.
4. In all AQI depends on $PM_{2.5}$ (Mainly) & hence it can be said that the University has maintained its $PM_{2.5}$ much below.

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3.0 Waste Management

3.1 Objectives

The overall objectives of the waste management assessment are summarized below:

(i) To assess the activities involved for the proposed and determine the type, nature and estimated volumes of waste to be generated.

(ii) To identify any potential environmental impacts from the generation of waste at the site.

(iii) To recommend appropriate waste handling and disposal measures / routings in accordance with the current legislative and administrative requirements; and

(iv) To categorize waste material where practicable (inert material / waste fractions) for disposal considerations i.e., public filling areas / landfill.

3.2 Solid Waste Management

To reduce waste at university, students and staff are educated on proper waste management practices through lectures, advertisement on notice boards, displaying slogan boards in the campus. Waste is collected daily from various sources and is separated into dry and wet waste.

3.2.1 Campus solid waste management program

The main objectives of SWM are the maintenance of clean and hygienic conditions and reduction in the quantity of solid waste (SW), which is disposed of in the sanitary landfill facility (SLF) of the area after recovery of material and energy from it. Student participation in waste management will play very important role as they will also spread awareness programs along with their duty towards cleanliness.

3.2.2 Producing less wastes

- Students can utilize their belongings like paper, pencils, and pens to the maximum and produce less amounts of wastes.
- Keeping classrooms and households clean: The students can keep their classrooms and houses clean by not littering things here and there.

3.2.3 Here are the methods of solid waste disposal and management

- Solid Waste Open Burning.
- Sea dumping process.
- Solid wastes sanitary landfills.
- Incineration method.
- Composting process.
- Disposal by Ploughing into the fields.
- Disposal by hog feeding.
- Salvaging procedure.
- Benefits of waste management
- Reducing waste will not only protect the environment but will also save on costs or reduce expenses for disposal. In the same way, recycling and/or reusing the waste that is produced benefits the environment by lessening the need to extract resources and lowers the potential for contamination.

The 7 principles of waste management-

3.2.4 The 7 R's of Recycling

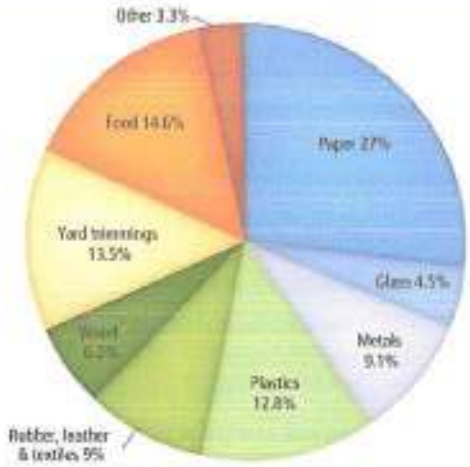
- Recycle.
- Refuse.
- Reduce.
- Reuse.
- Repair.
- Re-gift.
- Recover.

3.3 Municipal Solid Waste

Top 3 items in municipal solid waste,
In 2018, about 146.1 million tons of MSW were land filled. Food was the largest component at about 24 percent. Plastics accounted for over 18 percent, paper and paperboard made up about 12 percent, and rubber, leather and textiles comprised over 11 percent. Other materials accounted for less than 10 percent each.

Solid Waste Management may be defined as the discipline associated with the control of generation, collection, storage, transfer and transport, processing, and disposal of solid wastes in a manner that is in accord with the best principles of public health, economics, engineering, conservation, aesthetics and other ...

The major sources of municipal solid waste



Municipal Solid Waste (MSW)—more commonly known as trash or garbage—consists of everyday items we use and then throw away, such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, paint, and batteries. This comes from our homes, schools, hospitals, and businesses.

KMC Language University, Lucknow has a huge sewage treatment plant (STP) but during inspection, we found that STP is not functioning currently but university administration told us it will be functionate as soon as possible. As there some technical dispute.

Sewage Treatment Plant (STP) at KMC Language University, Lucknow

3.4 Plastic Waste

India has banned manufacture, import, stocking, distribution, sale and use of identified single use plastic items, which have low utility and high littering potential, all across the country from July 1, 2022.

Recently, the Ministry of Environment, Forest, and Climate Change announced the Plastic Waste

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Management (Amendment) Rules, 2022, which notified the instructions on Extended Producer Responsibility (EPR) for plastic packaging.

3.4.1 Centralized Online Portal

A. The government has also called for establishing a centralized online portal by Central Pollution Control Board (CPCB) for the registration as well as filingof annual returns by producers, importers and brand-owners, plastic waste processors of plastic packaging waste by 31st March 2022.

B. It would act as the single point data repository with respect to orders and guidelines related to implementation of EPR for plastic packaging under Plastic Waste Management Rule, 2016.

3.4.2 Environmental Compensation

Environmental compensation will be levied based upon polluter pays principle, with respect to non-fulfillment of EPR targets by producers, importers, and brand owners, for the purpose of protecting and improving the quality of the environment and preventing, controlling, and abating environment pollution. The Polluter Pays Principle imposes liability on a person who pollutes the environment to compensate for the damage caused and return the environment to its original state regardless of the intent.

3.4.3 Committee to Recommend Measures

A committee constituted by the CPCB under the chairmanship of CPCB chairman will recommend measures to the environment ministry for effective implementation of EPR, including amendments to Extended Producer Responsibility (EPR) guidelines.

3.5 Construction & Demolition waste

The Bureau of Indian Standards has allowed the use of concrete made from recycled material and processed C&D waste. The Construction and Demolition Waste Rules and Regulations, 2016 have mandated reuse of recycled material. Even the Swachh Bharat Mission has recognized the need for C&D waste management.

3.5.1 Construction and demolition waste management

Construction and demolition waste is generated whenever any construction/demolition activity takes place, such as, building roads, bridges, flyover, subway, remodeling etc. It consists mostly of inert and non-biodegradable material such as concrete, plaster, metal, wood, plastics etc.

C&D waste includes bricks, tiles, stone, soil, rubble, plaster, drywall or gypsum board, wood, plumbing fixtures, non-hazardous insulating material, plastics, wallpaper, glass, metal (e.g., steel, aluminum), asphalt, etc.

At KMC Language University, construction and demolition waste was found at many places. So, C&D waste can be used in landfill and architecture landscaping.

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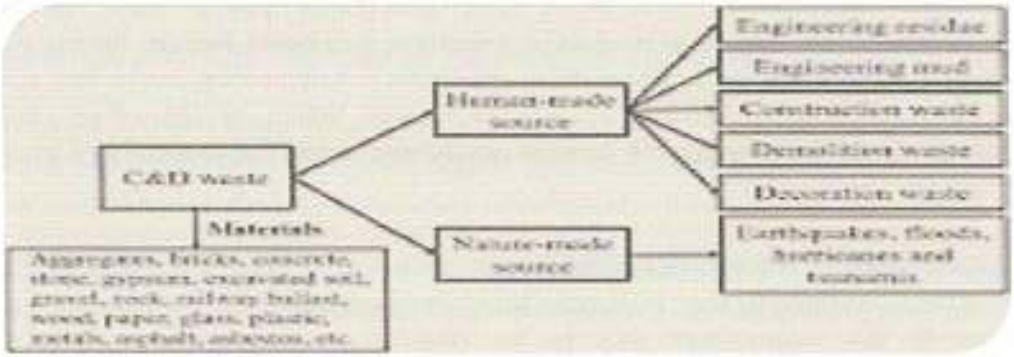
Construction & Demolition waste at KMC Language University, Lucknow

Recycling construction and demolition waste is profitable and environmental way to produce aggregates and reuse valuable materials that would otherwise be disposed. Processing the waste



near the worksites also reduces the need for truck transportation resulting in lower logistics costs. the impact of construction and demolition waste on the environment.

The environmental impacts caused by C&D waste mainly include land space consumption, landfill depletion, energy and non-energy resource consumption, resource depletion, air pollution, noise pollution, water pollution, etc. (Akanbi et al., 2018).

3.6 SOLID WASTE AUDIT

Solid waste is the unwanted or useless solid material generated from human activities in a residential, industrial, or commercial area. Solid waste management reduces or eliminates the adverse impact on the environment and human health. A number of processes are involved in efficiently managing waste for an organization. It is necessary to manage the solid waste properly to reduce the load on the waste management system. Solid waste generation and its management is a burning issue in current days. The rate of generation of solid waste is very high and yet we do not have adequate technology to manage the generated waste. Unscientific handling of solid waste can create threats to public health and environmental safety issues. Thus, it is necessary to manage solid waste properly to reduce the load on the waste management system. The purpose of this audit is to find out the quantity, volume, type, and current management practice of solid waste generation in the KMCLU campus. This report will help further solid waste management and to go for green campus development.

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3.6.1 Generation of solid waste in KMC Language University, Lucknow

KMCL University campus solid waste data is collected from all the building areas and the same is directly handed over to the Municipalities' Bin for further segregation and recycling purposes. There are different types of waste are recorded such as paper waste, plastic waste, construction waste, glass waste, etc. However biodegradable waste is recycled through the vermicomposting process. The daily rate of waste generation has-been increasing in recent time reaching up to an estimated amount of about 3600 Kg per month (tpd) during peak academic sessions and the minimum amount generated during the lean period is about 1900 Kg per month (tpd).

The wastes generated in the campus include (i) kitchen wastes, (ii) wastes from construction sites, (iii) liquid waste (residential and eateries), (iv) sewage and sludge, (v) biomedical waste, (vi) laboratory chemical wastes, (vi) Plastic wastes, (vii) cans and bottles; (viii) damaged or spoiled laboratory glassware, (ix)Unused tools and machinery including battery, (xi) papers including packaging materials (xii) electronics waste (xiii) garden leaves and (xiv) sweeping litters, etc.

Proper segregation of waste can fetch more revenue to the University.

3.6.2 Status of solid waste generation in KMC Language University

The University is committed to ensuring that all forms of wastes generated are handled based on the RRRR (Reduce, Reuse, Recycle, Recover) principles following appropriate source segregation protocols including safe disposal of bio, medical and hazardous wastes. There are studies from time to time to estimate the amount and nature of wastes, particularly solid waste which indicates the increasing trend of the volume. A preliminary survey reveals the domination of biodegradable components (volume basis) over the non-biodegradable counterparts on the campus. The students' hostels share the highest amount of solid waste mostly dominated by food/kitchen wastes (substantial amount of papers, plastics, metals are also seen with waste also generated in hostels) followed by residential areas, eateries including shopping complex and offices including academic buildings, construction sites (occasionally), open areas including gardens and roads.

KMC Language University is generating lots of kitchen waster i.e., can be used in vermicomposting.

Liquid Waste Management:

Following the resounding success of Sujlam 1.0 and 2.0, the Department of Drinking Water and Sanitation (DDWS) on May 5, 2023 launched Sujlam 3.0 – a campaign to manage greywater across all levels towards the making of an ODF Plus nation. Under the campaign, States and UTs can achieve ODF Plus Model status by saturating the villages with liquid waste management (LWM).

Greywater Management, an important component under Swachh Bharat Mission Grameen (SBM-G) Phase II prioritizes the management of greywater, preferably by simple techniques and near the source itself, using sustainable and economical technologies wherever feasible.

3.7 E-Waste

3.7.1 Importance of E-Waste management

It's critical to keep electronic waste out of landfills. The EPA has stated that e-waste is dangerous when improperly disposed of. Electronic devices are composed of toxic substances and heavy metals. Materials such as chromium, cadmium, mercury, and lead can leach into the soil

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contaminating the air and waterways. New Gazette Notification w.e.f. from 1st April 2023. A list of items have been mentioned in Schedule – I which have been considered as E – Waste in the policy.

3.7.2 Five Reasons Why E-Waste Recycling is Important

Everyone has one. That box, drawer or shopping bag in a closet filled with old cell phones, obsolete chargers, broken tablets, and defunct MP3 players. It's our personal pile of electronic waste. According to government agencies, these piles are getting bigger, forcing us to consider why e-waste recycling is important.

Recycling electronic waste (e-waste, sometimes called e-scrap has become an increasingly important environmental issue as the useful life of electronic devices becomes shorter and shorter and the list of electronic gadgets we use becomes longer and longer. E-waste recycling benefits are numerous and the need to address these items in the solid waste stream is becoming more urgent. There are many factors to consider when evaluating electronics recycling, but here are the most significant reasons why e-waste recycling is important.

3.7.3 It's critical to keep electronic waste out of landfills.

The EPA has stated that e-waste is dangerous when improperly disposed of. Electronic devices are composed of toxic substances and heavy metals. Materials such as chromium, cadmium, mercury, and lead can leach into the soil contaminating the air and waterways. EPA estimates there are about 60 million tons of e-waste per year globally. Recycling this material will save landfill space. For these reasons, there are numerous state laws that now ban e-waste in landfills.

3.7.4 Electronic products

These are valuable materials such as precious metals like gold, silver, and platinum along with copper, aluminum, plastic, and glass. Through the recycling process, these materials can be reclaimed. Most electronic devices are nearly 100 percent recyclable. It would be poor stewardship to landfill these materials.

3.7.5 Reclaiming valuable materials.

Reclaiming valuable materials from the recycling process means there will be decreased demand for new raw materials. This will help conserve important natural resources. According to the EPA, one metric ton of circuit boards contains 800 times the amount of gold mined from one metric ton of ore.

3.7.6 Using recycled material.

Using recycled material will also help reduce greenhouse gas emissions produced when manufacturing or processing new products known as "virgin material." The more recycled material is available, the lower the demand for virgin material.

3.7.7 Discarded electronic devices.

Discarded electronic devices can also be kept out of the landfill if they are refurbished, reused, and donated to a worthy cause. A quick Google search will provide a list of organizations in most areas that rebuild old electronics and provide them to those who otherwise would go without. "Reuse" is an important component of keeping material out of the waste stream.

KMC Language University is planning to segregate its E - Waste for further disposal to recyclers. For this they have already initiated the process. Also, in future they have agreed to file E-Waste return also.

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3.8 Single use Plastic restriction in campus Area

From 1st July 2022, single use plastic is banned all over India. It is expected from the University that posters and handbills to be pasted around the campus and those who find throwing of single use plastic in campus area to be fined. Student groups are encouraged to take active participation andwatch and educate all that not to throw such plastic in the campus area. This can be achieved through awareness and participation only. It is recommended to put slogans for NO PLASTIC ZONEor such different types of slogans. A competition among the students shall be conducted to give different suggestions for Slogans. The best selected Slogans to be suitably rewarded or certificate to be issued to that student. Plastics are a good source of fuel also. University has assured to erect different placards at places with slogans for **NO SINGLE USE PLASTIC ZONE.**

3.9 Hazardous Waste Management

3.9.1The Importance of Chemical Lab Waste Disposal for Colleges and Universities

To protect the safety and health of your university and its surrounding environment and community, t is required to implement proper chemical waste management. State and federal regulations require that all generators of chemical waste follow the correct disposal procedures and waste management in their facilities. Millions of dollars in fines have been levied against universities thatdo not comply with the EPA's environmental waste management procedures in the United States.

The United States Environmental Protection Agency (EPA) defines chemical waste.
Examples of some chemical waste material include:

- By-products created from educational and research experiments.
- Surplus and unused reagent grade chemicals.
- Any items that have been contaminated by chemicals.
- Batteries.
- Used oils.
- Items containing mercury.
- Pesticides.
- Chemically contaminated sharps.
- Contaminated needles, razor blades, pipette tips, pipettes, syringes.
- Fluorescent light bulbs.
- Preserved specimens.

And much more- check with your local hazardous waste disposal service for a more complete list.

3.9.2 Need Proper Disposal Procedures for Chemistry Lab Waste at KMCL University

It is the responsibility of all research and teaching staff to make sure the proper disposal of waste materials is followed according to EPA guidelines in the United States. Irresponsible or improper disposal of your chemical waste to the local refuse collection, into the atmosphere, or down the drains is forbidden by law.

The new legislation, along with increasingly strict environmental controls, makes it essential that appropriate disposal procedures are followed to avoid stiff fines being imposed on your University. These are some of the disposal methods your university should be following:

There are some materials on the EPAs 'red list' that should never be washed down your drains:

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- Organ halogen, organ nitrogen pesticides, triazine herbicides, or any biocides
- Cyanides.
- Compounds with the following elements- barium, beryllium, boron, chromium, cobalt, copper, lead, mercury, nickel, silver, tin, titanium, zinc.
- Hydrocarbons or mineral oils.
- Nitrites or fluorides.
- Poisonous compounds, metal phosphides or phosphorus element.

This is a partial list of chemicals- to check with the local hazardous waste disposal service for a complete list to ensure you do not pour any dangerous chemicals down the drain.
Chemical waste from Chemistry & other labs shall be diluted & neutralized before disposal as this will be hazardous to the ground water recharge, if left without treatment.

3.9.3 Waste Bins and Controlled Waste Disposal

In United States, not abiding by the regulations and laws will lead to university failing an inspection when the EPA, OSHA, or RCRA perform a routine examination of campus facilities. If an inspection fails, not only will it be costly, but these inspections are disruptive and can leave the University with a negative reputation.

Any waste suitable for local garbage services, other than glass and paper is considered controlled waste. This waste includes your dirty paper, rubber, plastic, and wood and should be placed in waste bins. Waste bins should be available in all labs and collected daily through your regular cleaning services.

Each of the labs must have a container for specific wastes that are not allowed to go with normal waste bins. In one of these special containers, should have it labeled to hold all broken lab glassware, sharp objects such as glass or metals, fine powders (which should first be placed into a glass container), dirty sample tubes, and any other contaminated chemicals that are not needles or syringes.

The lab-controlled waste containers are required to be emptied on a regular basis and should never be allowed to overflow. It should never be allowed to place any glass, fine powder, or sharp metal into a standard lab waste bin. Before placing bottles into the waste container, remove their tops, and make sure there is no detectable smell of chemicals coming from the bottles.

Dustbins installed at many places at KMC Language University, Lucknow

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3.9.4 Risks of Improperly Handled Lab Waste

Exposure to toxic chemicals, reactions, explosions, fires, or spills are all possible risks when the chemical waste is not disposed of and handled properly. These possible situations pose threatsto staff and students as well as other people in the area.

People's lives can be at risk, or the possibility of serious injuries is present from not complying with state and federal laws when it comes to managing your universities' hazardous waste. University administration should check with local hazardous waste disposal service, which is authorized to move and touch lab waste in a manner that minimizes potential risks to your staff and students.

3.9.5 Environmental Hazards from Improperly Handled Lab Waste

Students and staff members are not the only one's subject to risks from mishandled lab waste. The environment can also suffer serious consequences. Leachate, contamination, and pollution are all negative effects from hazardous waste, and will seriously leave a mark on the environmentif the University does not handle them properly. When waste from the labs is eventually removed from the facility, it not only affects individuals such as staff and students, but it can also ultimately affect society. *Lab waste is disposed of through three routes: into the atmosphere through gaseous effluent from incineration or evaporation, into our oceans, rivers, or other waterways through sewer systems and wastewater treatment facilities, and finally into landfills.*

In labs, the workers who are generating lab waste have an obligation to consider the fate of their used materials that they've created from their work. The lab workers need to be aware of the significant impact their disposal materials will have on people outside the lab, and how they will affect the environment around university and the surrounding community.

3.9.6 Workers Impact Proper Lab Waste Disposal

Materials become a waste by regulatory definition or a generator's decision, and the first responsibility for it being properly disposed of is in the hands of the lab worker. These workers are in the best place to know the characteristics of the materials they have synthesized or used. It is the lab worker's responsibility to assess the risks associated with the waste and evaluate it. It is the lab worker's choice on which strategy to handle; they must minimize or dispose of lab waste.

Lab workers have numerous sources available to them to help with making the decision on how to dispose of their lab waste. It can also have them check with the local hazardous waste disposal service for guidance on how to properly dispose of dangerous lab wastes.

3.9.7 Risk of Serious Injuries from Mismanaged Lab Waste in Colleges/Universities

In United States the EPA has discovered forgotten chemicals in university stockrooms through routine inspections of their laboratories. They have created a pattern of hazardous waste management programs in these research labs with their waste being left, sometimes for decades, in damaged containers. Some of these containers are even labeled as 'unknown' and some chemicals have been kept in temperatures that could cause them to explode.

Laboratories in universities and medical research centers use a large variety of chemicals that perform an extensive range of work. If labs in university are not managed properly, they will endanger both the workers in the lab and the community surrounding your university. The most serious problems these mishandled lab wastes can inflict include death.

To improve chemical lab waste management, the EPA (Environmental Protection Agency) created outlines on how to properly dispose of these hazardous materials through the RCRA (Resource Conservation and Recovery Act.) They have also created workshops, encouraged self-auditing of university labs, provided compliance assistance, and in some cases, taken

enforcement actions.
In one case involving the University of California, the EPA located numerous violations of hazardous waste requirements, many of which the University disclosed on their own accord. The violations were stated to include more than 4,000 containers of hazardous lab waste. Some of these wastes included reactive cyanide, corrosive acid, ignitable paint, and photochemical waste.

It was reported that the University had to spend almost two million dollars and over 23,000 staff hours to complete environmental audits in forty-seven of their university facilities, their agricultural research stations, campuses, medical and vet schools, and other various facilities. The EPA did reduce the penalties for many of the violations when the university agreed to Incentives for Self-Policing.

It can now be seen the importance of proper chemical lab waste disposal at your university. Proper handling will save the facility millions of dollars trying to correct mismanagement if it is discovered by the EPA. When you routinely follow proper management, you will have no concerns when it's time for an audit of university.

It will not only save individuals and University unnecessary expenses; one will protect the soil, air, wildlife health, and water in the environment and that of the surrounding community. Regulations to dispose of lab waste properly exist to help one know how to handle your hazardous chemicals. If anyone is unsure which procedures apply to the materials in the University lab, contact the local hazardous waste disposal service, and they will help. This service can come into the lab and showhow to label, store and dispose of all lab waste safely and properly.

The management of hazardous waste is a process which includes the collection, recycling, treatment, transportation, disposal, and monitoring of wastes disposal sites. In the current scenario of developing countries, hazardous wastes are often disposed directly into the environment posing health and environmental risk.

3.9.8 Responsibilities

a) Hazardous-waste characteristics.
b) Transport of hazardous waste. Transport vehicles. The manifest system.
c) Treatment, storage, and disposal. Treatment. Surface storage and land disposal.
d) Secure landfills.
e) Remedial action.

3.9.9 Procedure

Hazardous waste can be treated by chemical, thermal, biological, and physical methods. Chemical methods include ion exchange, precipitation, oxidation and reduction, and neutralization. Among thermal methods is high-temperature incineration, which not only can detoxify certain organic wastes but also can destroy them.

3.9.10 Objectives

Hazardous Waste Management Rules are notified to ensure safe handling, generation, processing, treatment, package, storage, transportation, use, reprocessing, collection, conversion, and offering for sale, destruction, and disposal of Hazardous Waste.

3.9.11Practice adopted in India

Hazardous and other Wastes (Management & Transboundary Movement) Rules, 2016 with

amendments:

Responsibilities of the occupier for management of hazardous and other wastes. -

(1) For the management of hazardous and other wastes, an occupier shall follow the following steps, namely: - (a) prevention; (b) minimization; (c) reuse, (d) recycling; (e) recovery, utilization including co-processing; (f) safe disposal.

(2) The occupier shall be responsible for safe and environmentally sound management of hazardous and other wastes.

(1) The hazardous and other wastes generated in the establishment of an occupier shall be sent or sold to an authorized actual user or shall be disposed of in an authorized disposal facility.

(2) The hazardous and other wastes shall be transported from an occupier's establishment to an authorized actual user or to an authorized disposal facility in accordance with the provisions of these rules.

(3) The occupier who intends to get its hazardous and other wastes treated and disposed of by the operator of a treatment, storage and disposal facility shall give to the operator of that facility, such specific information as may be needed for safe storage and disposal.

(4) The occupier shall take all the steps while managing hazardous and other wastes to

(5) contain contaminants and prevent accidents and limit their consequences on human beings and the environment; and

(6) provide persons working in the site with appropriate training, equipment, and the information necessary to ensure their safety.

(7) Grant of authorization for managing hazardous and other wastes. -

(8) Every occupier of the facility who is engaged in handling, generation, collection, storage, packaging, transportation, use, treatment, processing, recycling, recovery, pre-processing, co-processing, utilization, offering for sale, transfer or disposal of the hazardous and other wastes shall be required to make an application in Form 1 to the State Pollution Control Board and obtain an authorization from the State Pollution Control Board within a period of sixty days from the date of publication of these rules. Such application for authorization shall be accompanied with a copy each of the following documents, namely: -

(a) consent to establish granted by the State Pollution Control Board under the Water (Prevention and Control of Pollution) Act, 1974 (25 of 1974) and the Air (Prevention and Control of Pollution) Act, 1981 (21 of 1981);

(b) Consent to operate granted by the State Pollution Control Board under the Water (Prevention and Control of Pollution) Act, 1974 (25 of 1974) and/or Air (Prevention and Control of Pollution) Act, 1981, (21 of 1981).

(c) in case of renewal of authorization, a self-certified compliance report in respect of effluent, emission standards and the conditions specified in the authorization for hazardous and other wastes: Provided that an application for renewal of authorization may be made three months before the expiry of such authorization: Provided further that-

(i) any person authorized under the provisions of the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008, prior to the date of commencement 6 (ii) of these rules, shall not be required to make an application for authorization till the period of expiry of such authorization; any person engaged in recycling or reprocessing of the hazardous waste specified in Schedule IV and having registration under the provisions of the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008, shall not be required to make an application for authorization till the period of expiry of such registration.

On receipt of an application complete in all respects for the authorization, the State Pollution Control Board may, after such inquiry as it considers necessary, and on being

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satisfied that the applicant possesses appropriate facilities for collection, storage, packaging, transportation, treatment, processing, use, destruction, recycling, recovery, pre-processing, co-processing, utilization, offering for sale, transfer or disposal of the hazardous and other waste, as the case may be, and after ensuring technical capabilities and equipment complying with the standard operating procedure or other guidelines specified by the Central Pollution Control Board from time to time and through site inspection, grant within a period of one hundred and twenty days, an authorization in Form 2 to the applicant, which shall be valid for a period of five years subject to such conditions as may be laid down therein. For commonly recyclable hazardous waste as given in Schedule IV, the guidelines already prepared by the Central Pollution Control Board shall be followed: Provided that in the case of an application for renewal of authorization, the State Pollution Control Board may, before granting such authorization, satisfy itself that there has been no violation of the conditions specified in the authorization earlier granted by it and same shall be recorded in the inspection report.

(9) The authorization granted by the State Pollution Control Board under sub-rule (2) shall be accompanied by a copy of the field inspection report signed by that Board indicating the adequacy of facilities for collection, storage, packaging, transportation, treatment, processing, use, destruction, recycling, recovery, pre-processing, co-processing, utilization, offering for sale, transfer or disposal of the hazardous and other wastes and compliance to the guidelines or standard operating procedures specified by the Central Pollution Control Board from time to time.

(10) The State Pollution Control Board may, for the reasons to be recorded in writing and after giving reasonable opportunity of being heard to the applicant, refuse to grant any authorization under these rules.

(11) Every occupier authorized under these rules, shall maintain a record of hazardous and other wastes managed by him in Form 3 and prepare and submit to the State Pollution Control Board, an annual return containing the details specified in Form 4 on or before the30th day of June following the financial year to which that return relates.

(12) The State Pollution Control Board shall maintain a register containing particulars of theconditions imposed under these rules for management of hazardous and other wastes and it shall be open for inspection during office hours to any interested or affected person.

(13) The authorized actual user of hazardous and other wastes shall maintain records of hazardous and other wastes purchased in a passbook issued by the State Pollution Control Board along with the authorization.

(14) Handing over of the hazardous and other wastes to the authorized actual user shall beonly after making the entry into the passbook of the actual user.

Storage of hazardous and other wastes. - (1) The occupiers of facilities may store the hazardous and other wastes for a period not exceeding ninety days and shall maintain a record of sale, transfer, storage, recycling, recovery, pre-processing, co-processing and utilization of such wastes and make these records available for inspection: Provided that the State Pollution Control Board may extend the said period of ninety days in following cases, namely: - (i) (ii) (iii) (iv) (v)

(15) small generators (up to ten tons per annum) up to one hundred and eighty days of their annual capacity; actual users and disposal facility operators up to one hundred and eighty days of their annual capacity, occupiers who do not have access to any treatment, storage, disposal facility in the concerned State; or the waste which needs to be specifically stored for development of a process for its recycling, recovery, pre-processing, co-processing or utilization; in any other case, on justifiable grounds up to one hundred and eighty days.

3.9.12 TREATMENT, STORAGE AND DISPOSAL FACILITY FOR HAZARDOUS AND OTHER WASTES

Treatment, storage, and disposal facility for hazardous and other wastes. -

(1) The State Government, occupier, operator of a facility or any association of occupiers shall individually or jointly or severally be responsible for identification of sites for establishing the facility for treatment, storage, and disposal of the hazardous and other waste in the State.

(2) The operator of common facility or occupier of a captive facility shall design and set up the treatment, storage, and disposal facility as per technical guidelines issued by the Central Pollution Control Board in this regard from time to time and shall obtain approval from the State Pollution Control Board for design and layout in this regard.

(3) The State Pollution Control Board shall monitor the setting up and operation of the common or captive treatment, storage, and disposal facility, regularly.

(4) The operator of a common facility or occupier of a captive facility shall be responsible for safe and environmentally sound operation of the facility and its closure and post closure phase, as per guidelines or standard operating procedures issued by the Central Pollution Control Board from time to time.

(5) The operator of a common facility or occupier of a captive facility shall maintain records of hazardous and other wastes handled by him in Form 3.

(6) The operator of a common facility or occupier of a captive facility shall file an annual return in Form 4 to the State Pollution Control Board on or before the 30th day of June following the financial year to which that return relates.

3.10 Acid from Labs

3.10.1 Disposal of Acid in a Lab

Some of these methods are:

(a) Recycling/reuse of the chemicals.

(b) Incineration and disposal in landfills of incineration ash.

(c) Disposal in landfills of stabilized chemical waste, or non-hazardous waste; and

(d) Disposal in sewers of neutralized, non-toxic chemicals.

3.10.2How to dispose of acid solutions

Carefully pour one-quarter to one-half-cup of the hydrochloric acid into 2 to 5 gallons of water. It's very important to always add the chemical to the water and not the water to the chemical. Pour the diluted solution down the sink, flushing with large amounts of water. Work slowly to avoid splashes.

3.11 Types of waste generated from a lab

This waste can be broken down into a few categories: Hazardous; Clinical; Biological; Electrical; Laboratory. Reducing laboratory waste will have several benefits, saving money and reducing disposal costs while also encouraging safety in the lab.

3.11.1Handling and disposal of laboratory waste

Waste disposal - disposal of laboratory wastes (guidance)

1. Disposal Procedures.
2. Wash Down Drains with Excess Water.

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3. Incineration.
4. Laboratory Waste Bins and Controlled Waste.
5. Waste for Special Disposal.
6. Glass Recycling.
7. Bottles for Bulk Solvents.
8. Biohazard/Sharps Disposal - Syringes and Needles.

3.11.2 Types of laboratory waste

1. Clinical laboratories generate three primary types of waste: chemical waste, infectious (biohazard) waste, and pathological (large tissue) waste. This section contains information on correct disposal as well as environmental best practice for managing laboratory wastes.
2. Dispose of sulfuric acid in a lab
   Sulfuric acid may also be diluted and then neutralized. One method of neutralization is to add the acid slowly to a solution of soda ash and slaked lime, and to then flush with a large volume of water. Once sulfuric acid is diluted and neutralized it can be discharged to a sewer.
3. Neutralizing HCl in disposal
4. Decontamination/Waste Disposal Procedure Spills may be neutralized with sodium bicarbonate or baking soda. Do not dispose of HCl by pouring down drains followed by copious amounts of water without neutralization.

3.11.3 Disposal of proper chemical hazardous waste in the laboratory Caps and closure

1. Use waste containers with leak-proof, screw-on caps so contents can't leak if a container tips over.
2. If necessary, transfer waste material to a container that can be securely closed.
3. Keep waste containers closed except when adding waste.
4. Wipe down containers prior to your scheduled collection date.

3.11.4 Responsibilities

1. Hazardous-waste characteristics.
2. Transport of hazardous waste. Transport vehicles. The manifest system.
3. Treatment, storage, and disposal. Treatment. Surface storage and land disposal.
4. Secure landfills.
5. Remedial action.

3.12 Bio-Medical Waste

There are generally 4 different kinds of medical waste: infectious, hazardous, radioactive, and general 1000 kg/month – reuse through vermicomposting.

3.12.1 Types of Bio-medical waste

1. Human anatomical waste like tissues, organs, and body parts.
2. Animal wastes generated during research from veterinary hospitals.
3. Microbiology and biotechnology wastes.
4. Waste sharps like hypodermic needles, syringes, scalpels, and broken glass.
5. Discarded medicines and cytotoxic drugs.
6. The rule of bio-medical waste.
7. Amendments in Bio-Medical Waste Management Rules, 2016 Rules. The amended rules

stipulate those generators of bio-medical waste such as hospitals, nursing homes, clinics, and dispensaries etc. will not use chlorinated plastic bags and gloves beyond March 27, 2019, in medical applications to save the environment.

8. Responsibility for biomedical waste management.
9. The responsibility of each state to check for compliance will be done by setting up district-level committee under the chairpersonship of District Collector or District Magistrate or Additional District Magistrate. In addition, every 6 months, this committee shall submit its report to the State Pollution Control Board.
10. Biomedical waste management is important.
11. Biomedical waste management is of great significance because biomedical waste can adversely affect health inviting serious implications to the people who get in touch with it.

Segregation, storage, and safe disposal of the waste is the key to the effective management of biomedical waste in a workplace.

Although University campus does not have much of bio-medical waste but if it happens, proper disposal must be ensured.

Analysis:

1. The university campus area is very neat & tidy at its overall look.
2. Municipal Solid waste is being collected daily & sent to municipality on regular basis.
3. One Sewage Treatment Plant (STP) is available on the campus.
4. On average **120 Kg of kitchen** waste is generated daily through mess & canteen.
5. Waste bins at different locations were observed for Collection of waste.
6. No littering was observed in the whole campus area.

Observation:

1. The university has already declared the campus as **Single Use Plastic Free Zone area**.
2. This year the University has planned to summarize **all E – Waste** of the campus & send it to be authorized recycler for its disposal.
3. Regarding **Construction & Demolition waste**, the authorities have informed that it belongs to other state government department for which correspondence has already been done.

4.0 Noise Pollution

Noise pollution in higher educational institutions can be a significant issue that affects the learning environment, student well-being, and overall productivity. Here are some points to consider regarding noise pollution in such institutions:

1. Classroom Noise: Noise within classrooms can disrupt concentration, impair communication between instructors and students, and hinder learning. Common sources of noise include students talking loudly, noise from adjacent classrooms or hallways, and external sources like construction activities.
2. Lecture Halls and Auditoriums: These large spaces often host presentations, lectures, and discussions. Poor acoustics, inadequate soundproofing, or noisy HVAC systems can contribute to noise pollution, making it difficult for students to hear and engage with the speaker.
3. Common Areas: Common areas like cafeterias, libraries, and study halls are essential for student interaction and relaxation. However, excessive noise from conversations, phone calls, or group activities can create a distracting environment for those trying to concentrate or study.
4. Campus Events: Higher educational institutions frequently organize events, such as sports

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competitions, concerts, or cultural festivals. While these events foster community spirit, they can generate high levels of noise that may disrupt nearby classrooms or study areas.

5. Construction and Maintenance: Renovation or construction projects on campus can cause significant noise pollution. The noise from drilling, hammering, or heavy machinery can disrupt classes, affect faculty offices, and impact student concentration.
6. Student Housing: Noise pollution within student dormitories or housing facilities can affect the quality of sleep and study conditions. Late-night gatherings, music, or noise from adjacent rooms can disturb students, leading to fatigue and decreased academic performance.

4.1 Noise Pollution at KMC Language University

According to The Noise Pollution (Regulation and Control) Rules, 2000, educational institutions come under silence zones. Permissible limits for noise in silence zones are 50 dB during daytime and around 40 dB during nighttime.

Observation

At KMC Language University campus area, we found noise pollution under prescribed limits i.e., range from 23 dB to 28 dB.

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5.0 Recommendations

Although at different heads of water, air quality, waste management etc. we have discussed at length with:

1. **Analysis** of our test, samples & site report.
2. **Observation** of our test, samples & site report.

We hereby only deal with the recommendation part:

1. Water:

- It is recommended to install water meters (Initially at 10 H.P & 7.5 H. P pumps)
- Monitoring of consumption should be done at daily level.
- Monthly consumption to be reviewed in periodical meetings.
- Leakages should be identified & method to plug them be defined.
- Consumption of water should be optimum & where it is felt as misused, action to be taken accordingly.
- Policy for **Zero discharge of wastewater** is recommended.

2. Ambient Air Quality:

- The University campus is already having AQI within 50.
- This has been achieved due to plantation & greenery.
- Action to be taken to reduce further AQI within 30.
- This can be achieved by reducing the $PM_{2.5}$ size particles.
- More grassy area to be made so that dust may not fly in atmosphere.
- More plantation to be done & rate of survival should be monitored.
- The University has declared the campus as **NO SMOKING ZONE**.

3. Waste Management:

- It is recommended to set – up **a biogas or Vermicomposting plant** to utilise the kitchen waste as well as dry leaves, cuttings of grasses etc.
- New E – **Waste** policy has been implemented from 1st April 2023, must be adhered.
- **Ban on Single use plastic** has been implemented from 1st July 2022 must be ensured by penalty or whichever deemed fit by administration.
- Policy for **Net Zero waste Management** is recommended for inclusion.

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ENVIRONMENTAL POLICY 2022

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Khwaja Moinuddin Chishti Language University

Environmental Policy

1. PREAMBLE

Khwaja Moinuddin Chishti Language University is fully committed to adhere to the principles of protection of environment and Sustainability. The University also ensures that its functions and routine acts does affect environment positively. Since its inception the University has shown its commitment and liability towards the protection of the environment at the level best and that is why the campus is Green and Clean with beautiful landscapes and variety of trees. This Policy **provides for the protection, conservation, rehabilitation and improvement of the environment, for the prevention and control of pollution, and promotion of sustainable development** through following objectives:

1. Environmental education and communication are the main tools of raising public awareness which should be used for solving of environmental problems that directly depends on the level of society's knowledge on environmental protection. Communication is an ongoing two-way exchange of information between decision-makers and the general public. Environment awareness programmes through departments, NSS, NCC, Environment sustainability board committee.
2. Environmental resources management to ensure that ecosystem services are protected and maintained for equitable use by future human generations, and also, maintain ecosystem integrity as an end in itself by taking into consideration ecological, ethical, economic, and scientific variables.
3. Try to affix environmental concerns into all accordant dimensions of the teaching as well as research in the University.
4. To collaborate with regional, national and other agencies, encourage and elongate consciousness of begin environmental disposition policies and customs among teachers, students, staff as well as among other stakeholders throughout the University.

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5. To encourage buying up policy which approbate those goods and services which lead to less damage to the environment?
6. To extenuate the consummation of basic natural resources like petroleum products, water and energy as well as to insist more on the use of energy saving, low carbon measures, recyclable products and renewable (Solar energy, use of LED bulbs, power efficient equipment).
7. Evaluation of environment problems through comparative risk analysis of population health, environmental protection and quality of living conditions through research and extension activities.
8. To execute good protracted waste management strategies to extenuate gross waste generation and to increase recycling and reuse of waste product (paper and stationary waste)
9. To restrict emission of carbon dioxide and control pollution, restricted entry of automobiles in the campus
10. To ensure maintenance of lush green campus. For this the University encourages use of bicycles, battery powered vehicles, pedestrian path ways, ban on use of plastic in the campus, landscaping with trees and plants.
11. To develop and maintain water conservation facility in university through Rain water harvesting, borewell/ open well recharge, maintenance of water bodies.
12. To formulate and ensure effective implementation of solid waste management policy, E-waste management policy, water resource management policy etc.

2. ENVIRONMENT SUSTAINABILITY BOARD

For effective implementation of environmental policy Khwaja Moinuddin Chishti Language University has formulated clear lines of responsibility at administrative level. **ENVIRONMENT SUSTAINABILITY BOARD COMMITTEE** is responsible for the management of universities Eco- System & to formulate environmental policy for university.

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I. **COMPOSITION:** The Vice-Chancellor shall have the overall responsibility to council for environmental affairs at the university. In this position the VC or his nominee acts as chair of the environment sustainability board. ESB will be constituted with representatives from among faculty, student's union, and students from environmental groups in the campus, administrative staff, engineering staff, and the sanitation /cleaning staff, nominated by the Vice Chancellor. The board shall constitute of five members nominated by the Vice- Chancellor. The term of the members shall be of three years. The previous board will continue till the new board is constituted. If any member of the board retires or resigns, the Vice-Chancellor may nominate the new member. The University should ensure that the new board is constituted latest by 20th August every year.

II. **RESPONSIBILITIES**

- The committee will be entrusted with the task of creating action plans according to the green policy of the campus and would give necessary support to the various departments in the university to implement the action plans. The environmental policy of the university should be sensitive towards the changing ecological requirements of the society and of the university campus and therefore the action plan should be modified, after a thorough review, as and when required.
- The committee should be empowered with the task of ensuring that environmental sustainability of university is considered as of utmost importance and with approving the university development plans with minimum harm done to the existing biodiversity and ecology of the campus.
- The committee will also be in charge of designing and implementing various awareness campaigns to achieve the Green Campus status.
- The committee shall ensure that interdisciplinary courses that address ecological concerns are designed and taught in the university at different levels. The committee shall also work towards promoting interdisciplinary research that promotes ecological concerns.

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- Special invited guests from outside the university like Panchayat members, environmental activists, Forest department officials, and members from research institutes shall be allowed to attend meetings as consultants as and when considered necessary by the ESB, especially while considering development plans that could affect the society as large. But, the decisions shall be taken with the consent of the two third majority of the members in the committee.
- Ban on cutting of trees, exceptions allowed only after approval of board in writing.
- Effective implementation of environmental policy by means of audit and monitoring.
- Initiation of appropriate actions in case of non - adherence to environmental norms.
- Continuous review of effectiveness of existing environmental policies.

3. ENVIRONMENT MANAGEMENT FUND

The university should constitute an environment management fund, which could be utilized for the recurring maintenance expenditures for ensuring a sustainable campus. This fund could be utilized for ensuring a green area of the campus, for the maintenance of alternative energy sources like solar panels, the rain water harvesting system, bio gas plants and for the repair of the furniture's and reusable assets of the university. The decisions regarding the utilization of the funds should be taken by the environment sustainable board. Proactive efforts should be taken by the university to find funds through CSR collaborations or through different government projects for more investment in infrastructures that would lead to the university becoming more sustainable in the long run.

4. REVIEW POLICY

The policy shall be reviewed after every three years or earlier, as need arises. The environmental policy of the university should be sensitive towards the changing ecological requirements of the society and of the university campus and therefore the action plan should be modified, after a thorough review, as and when required.

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5. **Some of the key areas that the ESB will be addressing in adherence to the Green Policy guidelines are given below.**

I Energy management

1. The University will try and meet its energy needs by using local and renewable energy sources.
2. Reduce electricity consumption -Awareness should be given to the staff and students regarding the energy wastage.
3. In coming years dependence on solar energy should be increased. For this, the university should explore the possibilities of obtaining CSR funds. University has large roof top area which could be fitted with solar energy panels. University should thrive to become completely self-reliant for its energy requirements.
4. As an academic input for better energy management, interdisciplinary curriculum in human ecology could be introduced. This will prepare students to become advocates for the ecological integrity of the climate of the planet and give them tools to influence change in their chosen professions and communities.

II Waste Management

1. **Building up a system** –though university has implemented Green Protocol and started segregation of wastes, it has still not become fully functional. Efforts should be taken for building up a fully functional system for waste management which should rest on the principles of reduce, reuse, repair, redesign, replenish, refuse, reconsider and recycle.
2. **Awareness** should be given to the entire university community on waste management and waste segregation.
3. **Waste auditing:** wastes generated by the university should be audited to ascertain the source, type and amount of waste generated in a year. The yearly action plans should address ways to reduce this waste.
4. The cleaning staff should be authorized to report the increase or decrease in the waste generated by each department and the departments who are able to demonstrate reduction in their levels of waste produced should be honored.
5. The system for **waste segregation** and storing should be put firmly in place. Segregation shed should be reorganized into different chambers for storing plastic wastes, e- wastes and other non bio degradable wastes, which could be sold to the vendors during periodic intervals.

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(Recognized Under Section 2(f) & 12(B) of the UGC Act, 1956 & B.Tech. Approved by (AICTE)

6. **A panel of vendors**, including those who are capable of managing e-waste should be contacted and their periodic removal should be ensured.

7. Possibilities of **creating works of art from the waste** generated from within the university like, installations, gardens which would ensure the up-cycling of solid wastes can be done.

8. Start reducing the paper wastes through relying more on electronic devices at all levels including governance, examinations, admission, and finance etc. **e-governance should be ensured.**

9. **Bio-gas plants** should be established at the canteen and university hostel premises and should be well maintained. The staffs who are managing those plants should be given training about its maintenance. The capacity to create gas from degradable wastes should be explored fully and used in the canteen or hostels.

10. **Incinerators** should be installed into all women's toilets and properly maintained.

III Water Management

The geographic location of the university provides it with unique opportunities and constraints. Being situated in a wetland ecosystem where the flood water level is very high means plenty of water during the monsoon seasons, presence of rich wetland ecosystem, but with possibilities of flooding and contamination of the existing water sources. At the same time the university faces water shortage during the summer season. The water management policy of the university should reflect these dilemmas.

1. **Rainwater harvesting** – the buildings constructed in the university should be provided with rain water harvesting facilities and after proper filtration the rain water could be utilized for ground water recharging and could be stored in shal- low ponds. Decentralized storage should be attempted for a university like ours where large underground storage tanks would become impractical.

2. **Drainage map** of the university should be prepared which would be basis for watershed management and landscaping.

3. Awareness campaigns on reducing the water wastage in the university.

Other measures

1. Transportation – staff and students should be advised to use public transport system and vehicle pooling.

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2. Walking pathways and seats at different locations within the campus so that students are open to the effects of environment in their daily interaction.

3. No vehicle except for cycles within the restricted automobile zone.

4. Mosquito traps and regular inspection of mosquito breeding areas need to be carried out.

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7.0 References

1. Various News Papers cutting.
2. Data provided by KMC Language University administration.
3. Policy framed by KMC Language University administration for Environment.

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KHWAJA MOINUDDIN CHISHTI
LANGUAGE UNIVERSITY,
LUCKNOW

Exemplar Global

Certificate of Training

TNV hereby certifies that

ASHUTOSH KUMAR SRIVASTAVA

has successfully completed the 40 hours

Auditor / Lead Auditor Training Course which meets the training requirements of the Exemplar Global and has been declared as competent in the following competency units

- EnMS: Energy Management System
- AU: Management Systems Auditing
- TL: Leading Management Systems Audit Teams

ISO 50001:2018

Issue Date: 12th Sep. 2022

Certificate Number : 2209123622030102

Authorised Signatory

Prajesh Singh

This course is certified by Exemplar Global vide

Note: The course conforms to the principles and pro

for compliance with standards. This certificate

certificate is recognized by Exemplar Global

please write to Mail: info@

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Exemplar Global

Certificate of Training

TNV hereby certifies that

ASHUTOSH KUMAR SRIVASTAVA

Has successfully completed the 40 hours

Auditor / Lead Auditor Training Course which meets the training requirements of the Exemplar Global and has been declared as competent in the following competency units

- OH: Occupational Health and Safety
- AU: Management Systems Auditing
- TL: Leading Management Systems Audit Teams

ISO 45001:2018

Issue Date: 28th Sep. 2021

Certificate Number : 2109281221030101

Authorised Signatory

(Prayash Singh)

This course is certified by Exemplar Global vide regist[illegible] N[illegible]

Note: The course conforms to the principles and pract[illegible] for compliance with standards. This certificate [illegible] certificate is recognized by Exemplar Glob[illegible] please write to Mail: [illegible]

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TCB Training and Capacity Building

QUALITY COUNCIL OF INDIA

CERTIFICATE OF AWARENESS

This certificate is awarded to

ASHUTOSH KUMAR SRIVASTAVA

for participating in the eLearning capsule course on

An Overview of ISO/IEC 17020:2012 for Inspection Bodies

organized by

Training and Capacity Building (TCB) Cell, Quality Council of India

on

04 June 2022

Alok Jain
Director & Head,TCB

Cert No. TCB/QCI/040622/03-001

QUEST (An eLearning Platform of TCB)

TCB Training and Capacity Building

QUALITY COUNCIL OF INDIA

CERTIFICATE OF PARTICIPATION

This certificate is awarded to

ASHUTOSH KUMAR SRIVASTAVA

for participating in the Virtual Training on

Requirements of ISO/IEC 17020:2012 for Inspection Bodies

organized by

Training and Capacity Building (TCB) Cell, Quality Council of India

on

28-29 December 2022

Alok Jain
Director & Head, TCB

Cert No. TCB-QCI/291222/05-508

QUEST An eLearning Platform of TCB

isplay

Exemplar Global

Certificate of Training

TNV hereby certifies that

ASHUTOSH KUMAR SRIVASTAVA

has successfully completed the 40 hours

Auditor / Lead Auditor Training Course which meets the training requirements of the Exemplar Global and has been declared as competent in the following competency units

- EM: Environmental Management System
- AU: Management Systems Auditing
- TL: Leading Management Systems Audit Teams

ISO 14001:2015

Issue Date: 28th Sep. 2021

Certificate Number : 210928072103S101

Authorised Signatory
(Prajesh Singh)

This course is certified by Exemplar Global vide regi

Note: The course conforms to the principles and proc
for compliance with standards. This certificate is
certificate is recognized by Exemplar Global
please write to Mail: info@

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REGISTRAR
KHWAJA MOINUDDIN CHISHTI
LANGUAGE UNIVERSITY,
LUCKNOW

Exemplar Global

Certificate of Training

TNV hereby certifies that

ASHUTOSH KUMAR SRIVASTAVA

has successfully completed the 5 days

Auditor / Lead Auditor Training Course which meets the training requirements of the Exemplar Global and has been declared as competent in the following competency units

- QM: Quality Management System
- AU: Management Systems Auditing
- TL: Leading Management Systems Audit Teams

ISO 9001:2015

Issue Date: 28th Jul. 2021
Training Date: 14th to 18th Jul. 2021
Certificate Number : 2107280221020102

Authorised Signatory
(Prajwal Singh)

This course is certified by Exemplar Global vide

Note: The course conforms to the principles and practices

for compliance with standards. This certificate

certificate is recognized by Exemplar

please write to Mail info@

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Confederation of Indian Industry

125 Years - Since 1895

This is to certify that

A K SRIVASTAVA

is a

CII Certified Expert in Sustainable Waste Management

K S Venkatagiri

Executive Director

CII-Godrej GBC

Pradeep Bhargava

Chairman

Environment & Recycling Council

Hussain. S

Director

General Manager

IGBC

eLearning

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LANGUAGE UNIVERSITY,
LUCKNOW

Confederation of Indian Industry

Indian Green Building Council
C/o. Confederation of Indian Industry
CII – Sohrabji Godrej Green Business Centre
Survey No 64, Kothaguda Post, Near HITEC City
R R District, Hyderabad – 500084
Tel: 91-40-44185111 Fax: 91-40-44185189
Email: igbc@cii.in
Website: www.greenbusinesscentre.com ,
www.igbc.in

V Suresh
Chairman

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr Ashutosh Kumar Srivastava is one of the Individual Members of Indian Green

Building Council (IGBC) for the Year Jan 2020 to Dec 2024.

Mr Ashutosh Kumar Srivastava membership number is "IGBC - IM - 10530131"

V Suresh

CII

Confederation of Indian Industry
125 Years: 1895-2020

This is to certify that

ASHUTOSH KUMAR SRIVASTAVA

is a

CII Certified Expert in Climate Change & Environmental Sustainability

K S Venkatagiri
Executive Director
CII-Godrej GBC

Pradeep Bhargava
Chairman
Environment & Recycling Council

Hussain Shahyar
Chairman
Executive Education Committee

IGBC

Learning

Issued by CII-Sohrabji Godrej Green Business Centre

Issued on 10 June 2020

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REGISTRAR
KHWAJA MOINUDDIN CHISHTI
LANGUAGE UNIVERSITY,
LUCKNOW

IGBC

Confederation of Indian Industry

The Indian Green Building Council

hereby certifies that

Ashutosh Kumar Srivastava

has successfully demonstrated knowledge on the Green Building Design & Construction, Building Standards & Codes, IGBC Resources & Processes and Green Design Strategies & their impacts required to be awarded the title of

IGBC Accredited Professional

K S Venkatagiri
Executive Director
CII-Sohrabji GBC

V Suresh
Chairman
Indian Green Building Council

Gurmit Singh
Vice Chairman
Indian Green Building Council

9562

06 June 2020

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REGISTRAR
KHWAJA MOINUDDIN CHISHTI
LANGUAGE UNIVERSITY,
LUCKNOW

Certificate of Registration

SCK ®

This is to certify that Occupational Health & Safety Management System of

GC Consultancy Services

Flat No. 614, Vasant Enclave, Rajender Nagar, Gorakhnath,
Gorakhpur-273015 India

is in accordance with the requirements of the following standard

ISO 45001:2018

(Occupational Health & Safety Management System)

SCOPE

Conducting Environmental audits in coordination with CII Green Co Certifications which includes Energy, Renewable Energy, Water Conservation, Waste Water Management, Life Cycle Assessment

Certificate Number : SCK/03/GCC/22/91/1847

Initial Registration Date : 20-Jul-2022
1st Surveillance Date : 20-Jun-2023
2nd Surveillance Date : 20-Jun-2024
Certificate Expiry Date : 19-Jul-2025

To verify certificate visit at :

www.sckcerts.com
www.iafcertsearch.org

Issued by SCK Certifications Pvt. Ltd.

Director

IAS Accredited

Accreditation Board : 3060, Saturn Street, Suite 100, Brea, California 92821-1732, USA

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REGISTRAR
KHWAJA MOINUDDIN CHISHTI
LANGUAGE UNIVERSITY,
LUCKNOW

Certificate of Registration

This is to certify that Environmental Management System of

GC Consultancy Services

Flat No. 614, Vasant Enclave, Rajender Nagar, Gorakhnath,
Gorakhpur-273015 India

is in accordance with the requirements of the following standard

ISO 14001:2015

(Environmental Management System)

SCOPE

Conducting Environmental audits in coordination with CII Green Co Certifications which includes Energy, Renewable Energy, Water Conservation, Waste Water Management, Life Cycle Assessment

Certificate Number : SCK/02/GCC/22/91/1646

To verify certificate visit at :
www.sckcerts.com
www.iafcertsearch.org

Initial Registration Date : 20-Jul-2022
1st Surveillance Date : 20-Jun-2023
2nd Surveillance Date : 20-Jun-2024
Certificate Expiry Date : 19-Jul-2025

Issued by SCK Certifications Pvt. Ltd.

Director

IAS IAF ISO14001

Accreditation Body : 3000, Sahara Street, Suite 100, Brea, California 92821-1732, USA

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REGISTRAR
KHWAJA MOINUDDIN CHISHTI
LANGUAGE UNIVERSITY,
LUCKNOW

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Certificate of Registration

This is to certify that Quality Management System of

GC Consultancy Services

**Flat No. 614, Vasant Enclave, Rajender Nagar, Gorakhnath,
Gorakhpur-273015 India**

is in accordance with the requirements of the following standard

ISO 9001:2015

(Quality Management System)

SCOPE

Conducting Environmental audits in coordination with CII Green Co Certifications which includes Energy, Renewable Energy, Water Conservation, Waste Water Management, Life Cycle Assessment

Certificate Number : SCK/01/GCC/22/91/1845

Initial Registration Date : 20-Jul-2022
1st Surveillance Date : 20-Jun-2023
2nd Surveillance Date : 20-Jun-2024
Certificate Expiry Date : 19-Jul-2025

To verify certificate visit at :

www.sckcerts.com
www.iafcertsearch.org

Issued by SCK Certifications Pvt. Ltd.

Director

ISO 9001:2015

Accreditation Board : 3000, Saturn Street, Suite 100, Brea, California 92821-1732, USA

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LANGUAGE UNIVERSITY,
LUCKNOW

राष्ट्रीय लघु उद्योग निगम लिमिटेड
THE NATIONAL SMALL INDUSTRIES CORPORATION LIMITED

(A Government of India Enterprise)

Sr. No. 4087865

Branch Office : NSIC Limited, 112/1, IInd Floor, Benajhabar Road, Kanpur-208 002
Ph : 0512-2535049 Fax : 0512-2543217
Email : bokan@nsic.co.in Website : www.nsic.co.in

STORE DETAILS CERTIFICATE

Amendment Certificate Certificate (Valid From 18/10/2022 to 17/10/2023)

ANNEXURE TO GOVERNMENT PURCHASES ENLISTMENT CERTIFICATE

NO NSIC/GP/KAN/2022/9050413 D.T 05/12/2022

ISSUED TO M/s. G C Consultancy Services, UTTAR PRADESH

Flat No 614, Vasant Enclave, Rajender Nagar Lacchipur, GORAKHPUR UTTAR PRADESH-273015

Sno	Name of Service/ Activities	Definition of Activity/ Service(s)	Quantitative Capacity/Services PMPS
1	ENVIRONMENTAL CONSULTANCY	RENEWABLE ENERGY ENERGY WATER CONSERVATION WATER WASTE MANAGEMENT LIFE CYCLE ASSESSMENT	Rs.5 LAKH

CHECKED BY

S.N. YADAV

M/s. G C Consultancy Services

Authorised Signatory

"Authenticity of the certificate can be checked through the web portal: www.nsicspronline.com"

CIN : U74140DL1955GOI002481

REGISTRAR
KHWAJA MOINUDDIN CHISHTI
LANGUAGE UNIVERSITY,
LUCKNOW

राष्ट्रीय लघु उद्योग निगम लिमिटेड

THE NATIONAL SMALL INDUSTRIES CORPORATION LIMITED

(A Government of India Enterprise)

S.No. KAN-00028 70
S. No. 123061

Branch Office : NSIC Limited, 112/1, IInd Floor, Benajhabar Road, Kanpur-208 002
Ph : 0512-2535949 Fax : 0512-2543217
Email : bokan@nsic.co.in Website : www.nsic.co.in

GOVERNMENT PURCHASE ENLISTMENT CERTIFICATE

Amendment Certificate Certificate [Valid From 18/10/2022 to 17/10/2023)

Ref.No NSIC/GP/KAN/2022/93853

Date: 05/12/2022

Mis. G C Consultancy Services
FLAT No:-614, VASANT ENCLAVE, RAJENDRA NAGAR,
GORAKHPUR,
UTTAR PRADESH- 273015

Factory Address:
1 ,Flat No. 614, Vasant Enclave, Rajender Nagar, Lachipur,
GORAKHPUR, UTTAR PRADESH -273015

Name of the Proprietor
ASHUTOSH KUMAR SRIVASTAVA

Constitution:	Udyam Registration Number	Enterprise Social Class:	Special Category:
Proprietorship	UDYAM-UP-32-0023334	GENERAL	GENERAL

GOVERNMENT PURCHASE REGISTRATION NO: NSIC/GP/KAN/2022/0650413

Monetary Limit: ₹ 5 lakhs (₹ Five Lakh Only)

MSEs registered with NSIC are exempted from deposit of Earnest Money irrespective of value of Monetary Limit. Your name has been registered as a MSE Unit eligible for participation in the Central Government Store Purchase Programme as per the Single Point Registration Scheme for the following Item(s)/Store(s)/Service(s).

Name of the Store(s)/ Service(s)	Specification(s)	Qualitative Capacity	Quantitative Capacity P.M.P.S.
"As per List Attached" (1 item only)			

Disclaimer:-1. The purchasing agencies are advised to satisfy themselves with the store details in the certificate while doing the Technical Evaluation stage before placing the tender/order on the units, certified by NSIC.
2. This certificate will be valid subject to compliance of definition (Composite criteria of investment and turnover for classification of Micro, Small Enterprises as per MSMED Act).

The National Small Industries Corpn. Ltd. Govt. Purchase Section Kanpur

Authorised Signatory

Mis. G C Consultancy Services

"Authenticity of the certificate can be checked through the web portal: www.nsicspronline.com"

CIN : U74140DL1955GOI002481

Conditions overleaf

Bmisha
REGISTRAR
KHWAJA MOINUDDIN CHISHTI LANGUAGE UNIVERSITY, LUCKNOW

भारत सरकार
Government of India
सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय
Ministry of Micro, Small and Medium Enterprises

MSME

UDYAM REGISTRATION CERTIFICATE

UDYAM REGISTRATION NUMBER	UDYAM-UP-32-0023384
NAME OF ENTERPRISE	G C CONSULTANCY SERVICES
TYPE OF ENTERPRISE *	MICRO (Based on FY 2020-21)
MAJOR ACTIVITY	SERVICES
SOCIAL CATEGORY OF ENTREPRENEUR	GENERAL

NAME OF UNIT(S)

S.No.	Name of Unit(s)
1	G C Consultancy Services

OFFICAL ADDRESS OF ENTERPRISE

Flat/Door/Block No.	614	Name of Premises/ Building	Vasant Enclave
Village/Town	GORAKHPUR	Block	GORAKHPUR
Road/Street/Lane	Rajender Nagar	City	GORAKHPUR
State	UTTAR PRADESH	District	GORAKHPUR , Pin 273016
Mobile	7007794292	Email:	[illegible]@gmail.com

DATE OF INCORPORATION / REGISTRATION OF ENTERPRISE	26/02/2022
DATE OF COMMENCEMENT OF PRODUCTION/BUSINESS	26/02/2022

NATIONAL INDUSTRY CLASSIFICATION CODE(S)

SNo.	NIC 2 Digit	NIC 4 Digit	NIC 5 Digit	Activity
1	63 - Information service activities	6399 - Other information service activities n.e.c.	63999 - Other information service activities n.e.c.	Services

DATE OF UDYAM REGISTRATION 08/11/2022

* In case of graduation (upward/reverse) of status of an enterprise, the benefit of the Government Schemes will be availed as per the provisions of Notification No. S.O. 2119(E) dated 26.06.2020 issued by the M/o MSME.

Disclaimer: This is computer generated statement, no signature required. Printed from [illegible] & Date of printing:- 08/11/2022

For any assistance, you may contact:

1. District Industries Centre: GORAKHPUR (UTTAR PRADESH)

2. MSME-DFO: KANPUR (UTTAR PRADESH)

Visit : www.msme.gov.in ; www.dcmsme.gov.in ; [illegible]

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https://udyamregistration.gov.in/Udyam_User/Udyam_PrintApplication.aspx 1/1

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LUCKNOW