



# Kirori Mal College

UNIVERSITY OF DELHI

NAAC Accredited A + grade with 3.54 CGPA



## GREEN AUDIT REPORT



Prepared by  
**EHS ALLIANCE SERVICES**



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# CERTIFICATE



# CERTIFICATE

PRESENTED TO

## M/S KIRORI MAL COLLEGE

North Campus, University of Delhi, University Enclave, Delhi, 110007

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

## GREEN AUDIT

The green initiatives carried out by the institution have been verified on the report submitted and was found to be satisfactory.

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

SIGNATURE



05.10.2021

DATE OF AUDIT

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## ACKNOWLEDGEMENT

EHS Alliance Services would like to thank the management of Kirori Mal College for assigning this important work of Green Audit. We appreciate the co-operation to the teams for completion of assessment.

We would also like to thank **Mr. Ram Sunil Kumar Lalji** – *Asst. Professor*, member IQAC for his continuous support and guidance, without which the completion of the project would not have been possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

We are also thankful to

- **Prof. Shiv Kumar Kaushik** – Vice Principal
- **Prof. Anita Kamra Verma** – Professor – Department of Zoology
- **Dr. M. Ramananda Singh** - Associate Professor, Coordinator IQAC
- **Mr. Shri Krishan** – Caretaker

Last but not the least, we would like to thank **Prof. Vibha Singh Chauhan** – *Principal*, Kirori Mal College for giving us an opportunity to evaluate the environmental performance of the campus.





## DISCLAIMER

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

While all sensible care has been taken in its preparation, details contained in this report have been compiled in good faith based on 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 from any use of the information, statements or forecasts in the report.

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**Signature**

**LEAD AUDITOR**





## || CONCEPT AND CONTEXT

The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory from the academic year 2019–20 onwards that all Higher Educational Institutions should submit an annual Green, Environment and Energy Audit Report. Green Audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India that declares the institutions as Grade A, Grade B or Grade C according to the scores assigned at the time of accreditation. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures.

In view of the NAAC circular regarding Green auditing, the College management decided to conduct an external environment assessment study by a competent external professional auditor. The green audit aims to examine environmental practices within and outside the College campus, which impact directly or indirectly on the atmosphere. Green audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of College/college environment. It was initiated with the intention of reviewing the efforts within the institutions whose exercises can cause risk to the health of inhabitants and the environment.

Through the green audit, a direction as how to improve the structure of environment and inclusion of several factors that can protect the environment can be commenced. This audit focuses on the Green Campus, Waste Management, Water Management, Air Pollution, Energy Management & Carbon Footprint etc. being implemented by the institution. The concepts, structure, objectives, methodology, tools of analysis, objectives of the audit are discussed below.





## || INTRODUCTION

Now days, the educational institutions are becoming more thoughtful towards the environmental aspects and as a result new and innovative concepts are being introduced to make them sustainable and eco-friendly. To preserve the environment within the institution, a number of viewpoints are applied by the several educational institutes to solve their environmental problems such as promotion of the saving the energy, waste recycle, water consumption reduction, water harvesting and many more...

The activities carried out by the institution can also create adverse environmental impacts. Green audit is defined as an official inspection of the effects a College has on the environment. Green Audit is conducted to evaluate the actual scenario at the institution campus. Green audit can be a useful tool for a College/college to determine how and where they are using the most of the energy or water or resources; the College can then decide how to implement changes and make savings. It can also be used to determine the nature and volume of waste, which can be used for a recycling project or to improve waste minimization plan.

Green auditing and the application of mitigation measures is a win-win situation for all the institutions, the learners and the mother earth. It can also result in health awareness and can promote the environmental awareness, values and beliefs. It provides a better understanding to staff and students about the Green impact on institution. Green auditing also upholds financial savings through reduction of resource usage. It gives an opportunity to the students and teachers for the development of ownership of the personal and social responsibility. The audit process involves primary data collection, site walk through with the team of College/college including the assessment of policies, activities, documents and records.





## || OVERVIEW OF THE COLLEGE

The beginnings of Kirori Mal College are deeply connected with the becoming of India as a nation. Its roots go back to 1951 when it was established as Nirmala College by the American Jesuits. Coming into existence so close to the partition of the country, the college represented in many ways, the anguish as well as the hopes of the times. It was situated in an evacuee building in the crowded, commercial area of Qutub Road in Old Delhi. In July 1954, the college with the name Kirori Mal College was established and was allotted land on the fringes of the University Enclave better known as the North Campus. The first President of the Indian Republic, Dr Rajendra Prasad, laid the foundation stone of the present college building in the summer of 1955, thus certifying the priority the Government of India accorded to the establishment and the flowering of this institution. With generous funds from both the Government of India (ensured by the then Education Minister Mr Humayun Kabir) and the Seth Kirori Mal Charitable Trust along with the tireless strivings of the famous architect duo Anand Apte and Jhabwala, a wild, stinking, hitherto uninhabitable tract of land was transformed into an impressive and imposing premises of a new, modern, secular institution of higher learning within the span of one year.







Kirori Mal College today stands at the cusp between the past and the future. While it retains inspiring facets of its proud history, with an equally sharp gaze it looks ahead, assimilating the exciting world of new knowledge as it unfolds in front of it, holding the promise an experience seeped with exhilarating learning and holistic growth for all those who enter its portals. This college believes in providing the students an environment rich in knowledge and supportive of their extracurricular interests. The college encourages a quest for knowledge that is rooted in an ethical understanding of the world that we inhabit and this enthusiasm for learning along with a desire to evolve into socially responsible beings is reflected not only in the academic atmosphere but also visible in the field of extra-curricular activity. Their tradition of excellence in theatre, art and music only adds to the richness of the academic fabric of the college. You will encounter the unique combination of social activism, creativity and learning in every discipline and every corner of this institution.

Arts	B.A. Programs	Commerce	Science
<ul style="list-style-type: none"><li>•B.A. (Programme)</li><li>•B.A. (Programme) with Bengali</li><li>•B.A. (H) Economics</li><li>•B.A. (H) English</li><li>•B.A. (H) Geography</li><li>•B.A. (H) Hindi</li><li>•B.A. (H) History</li><li>•B.A. (H) Political Science</li><li>•B.A. (H) Sanskrit</li><li>•B.A. (H) Urdu</li></ul>	<ul style="list-style-type: none"><li>•Political Science and History</li><li>•Economics and Political Science</li><li>•Political Science and Philosophy</li><li>•History and Economics</li><li>•Philosophy and History</li><li>•Economics and Philosophy</li><li>•Bengali Disc. and Political Science</li><li>•Bengali Disc. and History</li><li>•English Disc. and Political Science</li><li>•Hindi Disc and Political Science</li></ul>	<ul style="list-style-type: none"><li>•B.Com. (Hons.)</li><li>•B.Com</li></ul>	<ul style="list-style-type: none"><li>•B.Sc. Physical Sciences</li><li>•B.Sc. Physical Sciences with Computer Science Option</li><li>•B.Sc. Life Science</li><li>•B.Sc. Applied Physical Sciences (Analytical Chemistry)</li><li>•B.Sc. (H) Botany</li><li>•B.Sc. (H) Chemistry</li><li>•B.Sc. (H) Physics</li><li>•B.Sc. (H) Mathematics</li><li>•B.Sc. (H) Statistics</li><li>•B.Sc. (H) Zoology</li></ul>

Over the years, the college has built up an impressive array of academic facilities such as a fully computerized library, a state of the art computer center and an active placement cell. Their endeavor is to make individuals more mature, responsible and socially aware. Kirori Mal College imparts education to Undergraduates in the following programmes



**Geo Location**  
Geo Coordinates from Google maps:  
**28.6830334, 77.2077194**





## Vision

The college aims to have an impact on society through constant innovation in education, research, creative solutions, and entrepreneurship and to develop excellent leadership through hard work and creativity. College also wants to create an outstanding educational experience for students focused on profound disciplinary knowledge; problem solving; leadership, communication, and interpersonal skills; and physical and mental well-being.

## Mission

Their mission is to enhance performance and effectiveness of the institution and to build capacity through effective linkages with Institutions of Higher Education. The institution needs infrastructural strengthening and technological support for creating research environment. They also need to apply holistic quality standards for teaching learning and research. Student-teachers should be provided opportunities for self-learning, reflection, assimilation and articulation of new ideas

## Core Values

**Excellence:** The College aims to provide an outstanding setting to their faculty, staff, and students to flourish. Innovative solution is as the application of better solutions that meet new requirements, unarticulated needs, or existing needs in our society.

**Respect:** Research should be intended for at solutions aimed best for people, communities and the environment.

**Inclusiveness:** They aim to create a research environment that supports, represents, embraces and engages members of diverse community and background and gender.

**Integrity:** Integrity is critical for the institutional effectiveness. College aims to pursue the utmost level of personal, intellectual, academic, financial and operational integrity in the community.







## AUDIT PARTICIPANTS

On behalf of College

Name	Position/Department
Prof. Vibha Singh Chauhan	Principal, Kirori Mal College
Prof. Shiv Kumar Kaushik	Vice Principal, Kirori Mal College
Prof. Anita Kamra Verma	Professor – Department of Zoology
Dr. M. Ramananda Singh	Associate Professor, Coordinator IQAC
Mr. Ram Sunil Kumar Lalji	Asst. Professor, member IQAC
Mr. Shri Krishan	Caretaker



On behalf of EHS Alliance Services

Name	Position	Qualifications
Dr. Uday Pratap	Lead-Auditor	Ph.D. , PDIS, QCI – WASH, Lead Auditor ISO 14001:2015
Ms. Pooja Kaushik	Co-Auditor	M.Sc, Field Expert, QCI – WASH





## EXECUTIVE SUMMARY

Green auditing is an essential step to identify and determine whether the institutions practices are sustainable and ecological. Traditionally, we were upright and efficient users of natural resources. But over the period of time, excessive usage of resources like water, electricity, petrol, etc. have become habitual for everyone especially, in urban and semi-urban areas. It is actually the right time to check if we (our process) are consuming more than required resources? Whether we are using resources sensibly?

Green audit standardizes all such practices and provides an efficient way to use natural resources. In the time of climate change and resource exhaustion it is necessary to re-check the processes and convert it in to green and sustainable. Green audit provides an approach for it. It also increases overall awareness among the folks working in institution towards the eco-friendly environment.

This is the first attempt to conduct green audit of this College campus for fulfilment of NAAC criteria. This audit was mainly focused on greening indicators like consumption of energy in terms of electricity and fossil fuel, quality of soil, water usage, vegetation, waste management practices and carbon foot print of the campus. Initially a questionnaire was shared to know about the existing resources of the campus and resource consumption pattern of the students and staffs in the College.

## GREEN AUDIT – ANALYSIS

### 1.1 GENERAL INFORMATION

#### 1. Does any Green Audit conducted earlier?

*KMC has conducted Environment Audit before, but this is their first Green Audit for environment protection.*

#### 2. What is the total strength (people count) of the Institute?

##### *Students*

*Male: 3283 Female: 1743 Total: 5026*

##### *Teachers (including guest faculty)*

*Male: 117 Female: 89 Total: 206*

##### *Non-Teaching Staff*

*Male: 63 Female: 13 Total: 76*



### Total Strength

Male: 3463 Female: 1485 Total: 5308

### 3. What is the total number of working days of your campus in a year?

There are two hundred working days in a year.

### 4. Where is the campus located?

The campus is located in the North Campus of the university in New Delhi, India

### 5. Which of the following are available in your institute?

Garden area	Available
Playground	Available
Kitchen	Available
Toilets	Available
Garbage Or Waste Store Yard	Available
Laboratory	Available
Canteen	Available
Hostel Facility	Yes, Boys hostel
Guest House	No

### 6. Which of the following are found near your institute?

Municipal dump yard	Not in vicinity of institute
Garbage heap	No Garbage heaps
Public convenience	Public convenience is available
Sewer line	Approximately 1 KM sewer line within campus
Stagnant water	No stagnant water
Open drainage	No
Industry – (Mention the type)	No
Bus / Railway station	Metro/Bus connectivity
Market / Shopping complex	Available



## 1.2 WASTE MINIMIZATION AND RECYCLING

### 1. Does your institute generate any waste? If so, what are they?

*Yes, Solid waste, Canteen waste, paper waste, plastic waste, horticulture waste, laboratories waste, e-waste, etc.*

### 2. What is the approximate amount of waste generated per day? (in KG approx.)

*Biodegradable waste - 20 Kg  
Non-biodegradable waste - 2 Kg  
Hazardous Waste - 1 Kg  
Others - 0.5 Kg*

### 3. How is the waste generated in the institute managed? By Composting, Recycling, Reusing, Others (specify)

- *One side printed Paper is re-used for internal communication and recycles papers within the campus.*
- *Avoid use of Single use plastic in the campus*
- *Diluted solutions are used instead of concentrated solutions in laboratories*
- *Solid waste is taken by Municipal Corporation after collecting the BMW separately*
- *Composting is done for horticulture waste management.*
- *Vermi Composting is done for bio-degradable waste management.*

### 4. Do you use recycled paper in institute?

*Yes, we use single side printed paper for rough work*

### 5. How would you spread the message of recycling to others in the community?

*Posters are displayed at different places in the campus to spread awareness about recycling*

### 6. Can you achieve zero garbage in your institute? If yes, how?

*Not yet achieved. Possible through waste management policy and planning.*



## 1.3 GREENING THE CAMPUS

### 1. Is there a garden in your institute?

*Yes, about 168577.20 Sq ft areas are developed as Gardens.*

### 2. Do students spend time in the garden?

*Yes, students spend around 2-4 Hours during winters.*

### 3. Total number of Plants in Campus?

*Plant type with approx. count*

<i>Full grown Trees</i>	<i>779</i>
<i>Small Trees</i>	<i>916</i>
<i>Hedge Plants</i>	<i>1644</i>
<i>Grass Cover</i>	<i>168577.20 Sq ft</i>

### 4. Is the College campus having any Horticulture Department? (If yes, give details)

*Yes, Total 15 staff deployed in horticulture*

### 5. How many Tree Plantation Drives organized by campus per annum?

*Annually, 2 times Tree Plantation Drives are Organized by campus. Total 40 trees and hedge plants planted in this Financial Year with more than 85% survival rate.*

### 6. Is there any Plant Distribution Program for Students and Community?

*The college distributes plants and saplings while welcoming and felicitating guests, students and teachers of the college*

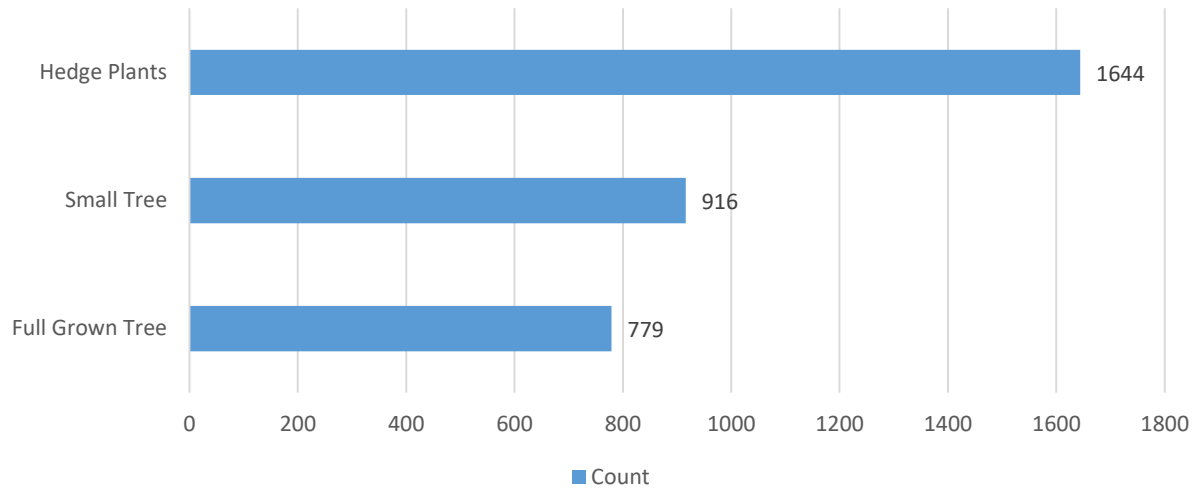
### 8. Is there any Plant Ownership Program?

*The plant ownership programme was initiated by the Department of Botany during the Covid-19 pandemic when the students were not allowed to come physically to college.*





### Greenary Details



Below is the location wise tree count along with their scientific names

Row Labels	Fully Grown	Medium	Small	Grand Total
(Cycas)		24		24
(Ficus compacta)			1	1
Azadirachta indica (Neem)	7	3		10
Caryota (Fishtail Palm)	2			2
Caryota urens (Fishtail Palm)		2	3	5
Dracaena trifasciata (Sansevieria)			39	39
Ficus religiosa (Peepal)	1	2		3
Ixora coccinea	1			1
Mangifera indica (Mango)	1			1
Saraca indica L. (Ashoka)	1	2	4	7
Scentless Cowplant (Gymnema inodorum)			7	7
(Navrangi - Small Orange)		1		1
Abutilon mauritianum (Indian mallow)		1		1
Aelo vera (Aloe vera)		3		3
Alianthus altissima (Tree of heaven)	3			3
Aloe barbadensis miller (Aelovera)		1		1
Aloe vera ( Aloe barbadensis miller)			46	46
Aloe vera (Aelovera)		4		4
Alpinia zerumbet (Shell Ginger)		8		8
Alstonia	8			8
Alstonia (Blackboard)	1			1
Alstonia scholaris (devil's tree)	1			1
Ambositra palm (Dypsis ambositrae)		2		2
Anthurium hookeri			1	1
Araucaria		2		2



Araucaria columnaris (Christmas Tree)			11	11
Araucaria heterophylla		2		2
Araucaria heterophylla (Norfolk)		2		2
Areca palm (Dyopsis lutescens)	5	20	84	109
Arecaceae	1	4		5
Arenga engleri		1		1
Arizona cypress		1		1
arrowweed (Pluchea sericea)	3	1	20	24
Artocarpus heterophyllus (jackfruit)	4			4
Ashoka (Saraca asoca)	15	3	7	25
Ashoka (Saraca asoca)	6		28	34
Asparagus (Asparagus officinalis)			4	4
Asparagus plant			8	8
Asparagus racemosus (Satawar)			2	2
Aspidistra elatior			1	1
Aspidopterys cordata	2			2
Australian pine (Casuarina equisetifolia)		1		1
Azadirachta indica	8	1		9
Azadirachta indica (neem)	9			9
Azadirachta indica (neem)	3			3
Aztec sweetherb (Phyla dulcis)			18	18
Bakan			2	2
Banyan (Ficus benghalensis)			1	1
Banyan (Ficus benghalensis)	1			1
Bar-room Plant (Aspidistra elatior)			5	5
Basia scoparia (Ragweed)			39	39
Bassia scoparia (Kochia)			67	67
Bassia scorparia (ragweed)		5		5
Bauhinia variegata (orchid tree)		1		1
Bayur (Pterospermum acerifolium)	1			1
Bismarckia nobilis	1			1
Bismarkianobilis		1		1
Borassus flabellifer (Sugar Palm)	1	25		26
Bougainvillea spectabilis	1	1		2
Brassica			7	7
Brhaea		3		3
Brosimum			1	1
Bryophyllum (Kalanchoe sect. Bryophyllum)			13	13
Burfeaenia	87			87
Butea monosperma (flame-of-the-forest)	1			1
Cactus (Portulacaria)			7	7
Caesalpinia sappan (Patranga)	102			102
Callery pear (Pyrus calleryana)			1	1
Callistemon (Bottle Brush)		1		1



Camellia sinensis			1	1
Canavalia rosea		1		1
carica papaya	4		2	6
carica papaya (pawpaw)	1	1		2
Caryota mytis		1		1
Cascabela thevetia (Yellow oleander)		9		9
Cassava (Manihot esculenta)	27			27
Cassia fistula (Golden Shower Tree)	5			5
cassia jaunatica	1			1
Catharanthus roseus	1	1	1	3
Catharanthus roseus (Cape periwinkle)		14		14
Centella asiatica (Gotu Cola)		11		11
century plant (Agave augustifolia)			1	1
Chinese banyan (Ficus microcarpa)			10	10
Chinese banyan (Ficus microspora)	1	17	456	474
Chinese evergreen (Aglaonema rotundum)			10	10
Chlorophytum comosum		1		1
Chlorophytum comosum (Spider plant)			63	63
Chrysanthamum morifolium (florist's daisy)			6	6
Cissus quadrangularis (Veld Grape)		2		2
Citrus limon	1	1		2
Citrus limon (lemon)		1	2	3
Citrus sinensis (sweet orange)		1		1
clausena indica		10		10
Clematis viticella (Clematis viticella)		1		1
Climbing fig (Ficus pumila)			1	1
Coccoloba unifera (Sea Grape)	1			1
codiaeum veriegatum			1	1
Common guava (Psidium guajava)			1	1
Common lespedeza			1	1
Cordia dichotoma (Indian Cherry)	1			1
Crymnama inclbrium	1			1
Cycas		1		1
Cycas revoluta		2		2
Cycas revoluta (Sago Palm)	2			2
cymbopogon citratus		1		1
Dalbergia sissoo (North Indian rosewood)		1		1
Date palm (Phoenix dactylifera)			1	1
Date palm (Phoenix dactylifera)	1			1
Delonix regia	1			1
Delonix regia (Royal Poinciana)	2			2
Desert broom (Baccharis sarothroides)			2	2
Devils ivy (Epipremnum aureum)			8	8
Diascia barberae	1			1



Dieffenbachia (Dumbcane)			7	7
Dieffenbachia seguine (dumb cane)		28		28
Dieffenbachia segunina		1		1
Dracaena fragrans			1	1
Dracaena fragrans (Corn Palm)		78		78
Dracaena fragrown			3	3
Dracaena mahatma (Cordyline Terminalis Mahatma)		16	13	29
Dracaena reflexa (Song of India)		2		2
Dracaena trifasciata			1	1
Dracaena trifasciata (Snake Plant)		18		18
Dracaena trifasciata (Snake Plant)		5		5
draceana trifasciata	1	4	3	8
Dragon tree (Dracaena augustifolia)			26	26
Dragon tree (Dracaena marginata)			12	12
Dwarf lilyturf (Ophiopogon japonicus)			2	2
Dyopsis onilahensis		1	2	3
Dyopsis onilahensis (palm tree)		24	14	38
e: Solanum lycopersicum (Tomato)			1	1
Epipremnum aureum			2	2
Epipremnum aureum (Golden Pothos)			41	41
Epipremnum aureum (Money Plant)		2		2
Erica Palm			3	3
Erythrophleum suaveolens (Ordeal Tree)		1		1
Euphorbia (Spurges)	1	7		8
Euphorbia grantii		2		2
Euphorbia lactea (mottled spurge)		6		6
Euphorbia milli (crown of thorns)		3		3
Fernandea adenophylla (katsagon)	1			1
Ficus benghalensis			1	1
Ficus benghalensis (the banyan)	1			1
Ficus Benjamiana	51			51
Ficus benjamina (Ficus)		3		3
Ficus benjamina (Small Ficus)			9	9
Ficus benjamina (weeping fig)			3	3
Ficus lyrata (Fiddle-leaf Fig)	1			1
Ficus malacocarpa			79	79
Ficus Panda	60		19	79
Ficus racemosa (cluster fig)	1			1
Ficus religiosa	1		26	27
Ficus religiosa (Bodhi tree)	2			2
Ficus religiosa (Peepal)	7	2		9
Ficus variegata			1	1
Ficus variegata (Common Red-stem Fig)			2	2
Ficus variegata (Common Red - stem Fig)		4		4





Fig	1			1
Furcraea foetida (Giant Cabuya)		2		2
Gardenia jasminoides (cape jasmine)			3	3
Giant Cabuya (Furcraea foetida)			7	7
Glycosmis pentaphylla (gin berry)		4		4
Grevillea rubusta (Silky Oak)	6			6
Gulmohar (Delonix regia)	4			4
Hauili (Ficus septica)	5			5
Hibiscus	11		1	12
Hibiscus rosa sinensis		1		1
Hibiscus rosa-sinensis (Hibiscus)		8	9	17
Hibiscus sinensis		1	2	3
Hibiscus sinensis (China Rose)			1	1
Hibiscus syriacus	1			1
Holy Basil (Ocimum tenuiflorum)			5	5
holy basil (Ocimum tenuiflorum)			1	1
Howea forsteriana		2		2
Humulus lupulus (common hop)	1			1
latropha curcas (physic nut)		1		1
Indian tree spurge (Euphorbia tirucalli)			3	3
Indigofera tinctoria			4	4
Japanese Laurel (Aucuba japonica)		1		1
Jasmine (Jasminum)			1	1
jasminum polyanthum			1	1
Juniperus virginiana			1	1
Kalanchoe blossfeldiana (Flaming Katy)			22	22
Kalanchoe pinnata (Mother of Thousands)		4	22	26
Kigelia pinnata ( African sausage tree)	16			16
Kigellia Pinatta (Kigellia)	1			1
Kochia (Bassia scoparia)	31			31
Lawsonia inermis (henna tree)		3		3
Line pencil cactus (Euphorbia trucalli)			2	2
Livistona chinensis (Chinese Fan Palm)	2			2
Livistona chinesis (Chinese Fan Palm)		3		3
Longevity spinach (Gynura procumbens)			25	25
Iva xanthiifolia			2	2
Macrozamia moorei	2		1	3
Madhumalti Creepers	8			8
Magnifra indica	1			1
Mangifera indica			2	2
Mangifera indica (mango)	1		5	6
Manilkara zapota (Chikoo)	1			1
Manorano Palm (Beccariophoenix madagascariensis)			1	1
Melia azedarach (Chinaberry)		2		2



Melia azedarach (Persian Lilac.)	2			2
Melia azedarch (Persian Lilac)	2			2
Mentha spicata (Spearmint)			1	1
Millettia pinnata (Indian beech)	14			14
Mitragyna speciosa		1		1
Monarano Palm (Beccariophoenix madagascariensis)		14		14
Monestra deliciosa (Swiss-cheese Plant)	1			1
Monoon longifolium		8		8
Monstera		3		3
Monstera deliciosa		1	1	2
Morus alba (Mulberry)	2			2
Morus alba (Mulberry)	2			2
Morus alba (White mulberry)	8	1	3	12
Morus nigra			1	1
Morus rubrav (Red mulberry)		1		1
Moses in the caddle (Tradescantia spathacea)			1	1
Mottled spurge (Euphorbia lactea)			4	4
Mottled spurge (Euphorbia lactea)			2	2
Murdannia loriformis (severalflower dewflower)		32		32
Murraya koenigii		2	1	3
Murraya koenigii (Curry Leaf Tree)		1	1	2
Murraya koenigii (Curry Leaves)		7		7
Murraya koenigii (Curry Plant)		1		1
Murraya paniculata (orange jasmine)		1		1
Musa (Banana)	1			1
Musa acuminata (wild banana)	1	1	2	4
Musaendra erythrophylla (red flag bush)		1		1
Neem (Azardirachta indica)	1			1
Nephrolepsis crodifolia (fishbone fern)		26	6	32
Norfolk			1	1
Norfolk island pine(Araucaria heterophylla)		2		2
Nyctanthes arbor-tristis (Harsinghar)		1		1
Ocimum tenuiflorumm (holy basil)			6	6
olanum lycopersicum (Tomato)		2		2
Paperflower (Bougainvillea glabra)			14	14
Parkia speciosa (Bitter Bean)	2			2
Passiflora subreosa	1			1
Peepal (Ficus religiosa)	1			1
Pemetia pinnata (island lychee)	1			1
Phoenix dactylifera (Date Palm)			8	8
Phycus	2			2
Phyllanthus emblica (Amla)		1		1
Pine (Pinus)		1		1
Pittosporum coriaceum			8	8



Pleumaria (Frangipani)	5			5
Pleumaria alba (White Frangipani)		1		1
Pleumaria pudica (Bridal Bouquet)		1		1
Pleumeria (Caryota urens)	29	20		49
Plumeria alba		2	1	3
Plumeria rubra		7		7
Polyscias scutellaria		1		1
Ponytail palm (Beaucarnea recurvata)		1	2	3
Portula grandiflora (Moss Rose)		26		26
Portulaca grandiflora	3			3
Portulaca riabra		1		1
prosopis cineraria			1	1
Pseuderanthemum carruthersii (Purple False Eranthemum)		2		2
Psidium guajava		1		1
Psidium guajava (guava)	2	7		9
Ptreis cretica (Cretan brake fern)			12	12
Punica granatum		1		1
Punica granatum (Pomegranate)	1			1
Ravenea rivularis		9		9
Raystonea regia (Florida Royal Palm)	3			3
Rhapis excelsa	1		2	3
River tamarind (Leucaena leucocephala)	2			2
Rohoeo discolor (Boat Lily)		113		113
Rosa rubiginosa (sweet briar)		7		7
Royal palm (Roystonea regia)	1	1		2
Royal poinciana	1			1
Roystonea regia (Cuban Royal Palm)	1			1
Sabal mexicana Hostel Lawn (1st)		1		1
Sacred fig	1			1
Sada Bahar (Catharanthus roseus)	30			30
Sago Palm			2	2
Sago palm (Cycas revoluta)			1	1
Saltbushes (Atriplex)			5	5
Santalum album Sandalwood		1		1
Sapin de Noël (Araucaria luxurians)		1		1
Sapindus Emarginatus (Notched Leaf Soapnut)	1			1
saraca asoca	3	7		10
Saraca asoca (Ashoka tree)		11		11
Saraca asoca (Ashoka)	36	10	45	91
Sechium edule (Chayote)		1		1
Severalflower dewflower		1		1
Snake plant (Sanseveria trifasciata)			3	3
Sonna siamea			1	1
Southern silky oak	1		3	4



Spider plant (Chlorophytum comosum)			5	5
Spineless yucca			1	1
Sprangers asparagus		6		6
Sprengers Asparagus (Asparagus aethiopicus)			8	8
stem fruited fig (Ficus caulocarpa)	2			2
Syngonium podophyllum (Arrowhead Plants)		18		18
syngonium podophyllum			4	4
Syzygium cumini (Jamun)	4	1		5
Syzygium cumini (Java plum)			1	1
Tabernaemontana divaricata (Pinwheel Flower)			1	1
Tagetes (Marigold)			41	41
Tamarindus indica (Tamarind)	47		1	48
Tamarix dioica (nona jhau)	1	2	2	5
Tectona grandis (Teak)	4			4
Thailand rosewood (Dalbergia cochinchinensis)	4	1		5
Thevetia peruviana (Yellow Oleander)	3			3
Thiya			2	2
Thuja (Thija)		1		1
Tiliacora triandra	1			1
Trachycarpus princeps (Martin Gibbons)		2		2
Tradescantia spathacea (Rohoeo discolor)		6		6
Tradescantia zebrina (silver inch plant)		43	10	53
Weeping Fig	2	5	2	9
Weeping fig (Ficus benjamina)		13		13
Weeping fig (Ficus benjamina)	2			2
Weeping Fig (Ficus)		32	10	42
white clover (Trifolium repens)			12	12
Zephyranthus carinata (ROSE PINK ZEPHYRLILY)			20	20
<b>Grand Total</b>	<b>779</b>	<b>916</b>	<b>1644</b>	<b>3339</b>

## 1.4 WATER AND WASTEWATER MANAGEMENT

### 1. List uses of water in your institute

*Basic use of water in campus:*

*Drinking – 127.39 KL/month*

*Gardening – 1378.20 KL/month*

*Kitchen and Toilets – 1007.99 KL/month*



*Others – 378.10 KL/month*

*Hostel – 27.00 KL/Month\* (only few students were present, because of pandemic situation)*

*Total = 2918.68 KL/Month*

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

*There are overhead and underground water tanks for the storage of water and boosting within the College campus.*

### ***Saving Techniques***

- *Avoid overflow of water controlled valves are provided in water supply system.*
- *Close supervision for water supply system.*
- *Sprinklers usage for gardening and grass cover*
- *Water Conservation awareness for new students*

## **3. Locate the point of entry of water and point of exit of waste water in your institute.**

*Entry - Water comes from Delhi Jal Board (MCD) and additionally 2 bore well connections are there*

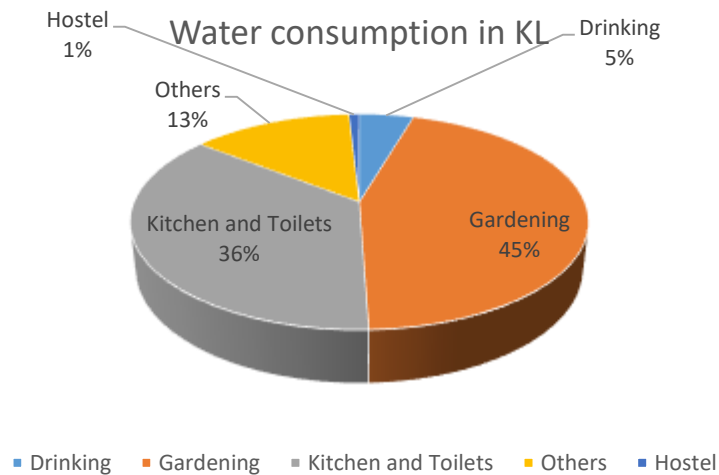
*Exit- From Canteen, Toilets, bathrooms, Hostels and Labs through covered drainage which is connected to sewage*

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

### ***Basic ways:***

- *Close the taps after usage*
- *Maintenance and monitoring of valves in supply system to avoid overflow, leakage and spillage*





## 1.5 ANIMAL WELFARE

### 1. List the animals (wild and domestic) found on the campus (dogs, cats, squirrels, birds, insects, etc.)

Approx. 32 species of Birds, 8 Cats and around 100+ Squirrels are found in campus. Record of neutering and vaccination before leaving them back on the campus as per MCD rules. The organization is Neighborhood Woof authorized by MCD for carrying out ABC for dogs. 6-7 stray dogs are visible in the vicinity of the college, and all of them are vaccinated. A variety of bird's species and other flora and fauna available, so institute is doing their bit for bio diversity conservation.

### 2. Does your institute have a Biodiversity Program or a KARUNA CLUB?

Yes KMC eco club - Bhoomi actively organizes awareness through various campaigns and activities including seminars, activities, poster competition, etc. The Department of Botany regularly carries out regular surveys to check the health of trees on the college campus.

## 1.6 CARBON FOOTPRINT - EMISSION & ABSORPTION

### 1. Electricity used per year - CO2 emission from Electricity

$(\text{electricity used per year in kWh}/1000) \times 0.84$   
 $34227 \text{ kWh}/1000 \times 0.84$   
 $= 34227 / 1000 \times 0.84$   
 $= 28.75 \text{ tons}$



## 2. LPG/PNG used per year - CO2 emission from LPG/PNG

$(LPG/PNG \text{ used per year in KG}/1000) \times 2.99$   
=0 ton

## 3. Diesel used per year CO2 emission from HDS (Diesel)

$(Diesel \text{ used per year in litre}/1000) \times 2.68$   
=180/1000x2.68  
= 0.41 tons

## 4. Transportation per year (car) CO2 emission from transportation (Bus and Car)

College doesn't has any owned vehicles, so emission because of the transportation is Zero.

Total CO2 emission per year cumulative by electricity usage + LPG usage + Diesel usage + bus and car transportation is 29.16 tons\*

\*The carbon emission of KMC is showing less than actual values because of the pandemic situation. There was hardly any LPG and diesel consumption during this period, and electricity consumption was also less compared to fully functional campus before COVID

## Carbon absorption by flora in the institution

There are 779 full grown trees and 916 semi grown trees of different species, on the campus spread over 3.87 acres.

Carbon absorption capacity of one full grown tree 22 kg CO2 Therefore Carbon absorption capacity of 779 full-grown trees =779 x 22 kg CO2  
=17.14 tons of CO2.

The carbon absorption capacity of 916 semi-grown trees is 50% of that of full-grown trees. Hence the carbon absorption  
=916 x 6.8 kg of CO2  
= 6.23 tons of CO2

There are approximately Hedge Plants 1644 of various species being raised in the gardens and grown in the areas where no buildings are built Carbon absorption of bush plants varies widely with their species. Certain bushes absorb very high level of CO2 where as some others absorb very



low level of CO<sub>2</sub>. In the absence of a detailed scientific study, 200g of CO<sub>2</sub> absorption is taken per bush (in consultation with Environmental Science specialists). Based on this, total carbon absorption of bushes

=1644x 200 g

=0.33 tons of CO<sub>2</sub>

The lawns on the campus have buffalo grass, Mexican grass and indigenous grass species and cover a total area of 168577.20 sq. ft. Carbon absorption capacity of a 10 sq. ft. area of lawn is 1 g per day Therefore, carbon absorption by lawn area

=168577.20 x 365 x 0.1 g CO<sub>2</sub>

= 6.15 tons

Grand total of carbon absorption capacity of the campus is 29.85 tons. Overall the KMC campus is carbon neutral.

## || GREEN INITIATIVES BY CAMPUS

- **Renewable Energy** - Solar power plant of capacity 240KW + 60KW is installed on building roof that will supply approx. 60% of total power in campus. But during Pandemic, solar PV was providing 100% of the requirements.
- The college is using solar lamps for front lawn.
- **Tree Plantation Drives** – two plantation drives were carried out in last FY in the Campus.
- **Air Pollution Reduction** - Personal Vehicles (Students) are not allowed in the campus, to prevent air pollution
- **Solid Waste Management** – Solid Waste management is done by Municipal Corporation.
- **Adoption of Village** – The college students visit the village Chandrawal and interact with families to raise awareness about the connections between good health, cleanliness, environment and the green cover.
- **Water Conservation** – RO wastewater is used for plant gardening in campus
- **Paper Conservation** - College has a policy for two sides Xerox and printing, Paper Recycling.
- **Environment Committee Initiatives** – KMC has an eco-club – Bhoomi that organize various activities such as plantation drives, webinars, and awareness campaigns. Kirori Mal College is the very first college in Delhi University to organize FDP (Faculty Development Program) on the topic 'Environment Audit'.



## RECOMMENDATIONS

- Eco-friendly parameters should be included in the purchase of articles and goods for the College campus.
- Water Meter should be installed at every building of institute for monitoring of water consumption per capita.
- College should go for water balancing / audit for monitoring the use and wastage of water.
- Solar heaters should be installed in canteen and hostel premises.
- Increase in the display of environment-conscious posters/paintings/slogans at various places in the campus for spreading awareness amongst students.
- Messages should be displayed at various locations to Aware the Peoples about Energy Savings. The use of Natural Lights and Natural Ventilation should be promoted. College should run a Conservation awareness campaign
- Involvement of all stake holders is highly required in environmental awareness programmes and campaigns.
- We recommend college to build sewage treatment plant (STP) of required capacity and treated water used be used in toilet and gardening purposes.

## CONCLUSION

This audit involved extensive consultation with all the teams, interactions with key personnel on wide range of issues related to Environmental aspects. Overall 28% of College campus is for landscaping. Kirori Mal College has eco club - Bhoomi for awareness campaigns, activities and sustainable use of resources.

The college is considering the environmental impacts of most of its actions and makes an intensive effort to act in an environmentally responsible manner.

Few things that are important to initiate includes initiation of checking of water flow of taps. We also highly recommend for installation of water meters at each building/block and water balancing report.



## || REFERENCE:

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

### Transparency of Green Audit Report

*Green audit report is one of the useful means of demonstrating an organization's commitment to openness and transparency. If an Organisation believes it has nothing to hide from its stakeholders, then it should feel confident enough to make its green audit reports freely available to those who request them. As a basic rule, green audit reports should be made available to all stakeholders.*

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## ANNEXURE I – PHOTOGRAPHS OF ENVIRONMENT CONSCIOUSNESS



Well ventilated building structure



Well maintained College campus



Lush green campus



Indoor Plants in the campus



Well ventilated building structure



Well maintained College campus



Lush green campus



Indoor Plants in the campus





Paving stone installation  
in the College



Playground



Ornamental Plants in the  
campus



Indoor Plants in the  
campus



Pavers for walkways



Green grassland



Campus Nursery



Green net Nursery



Composting of bio degradable waste



Vermi composting of bio degradable waste



Flora diversity conservation  
Tree with name plates



Flora conservation  
Tree with name plates





Classrooms as per NBC guidelines with more than 40% window ratio



Solar PV installed on building roof



Cleanliness awareness posters at various places



Flora diversity conservation - Tree with name plates



Plantation drive



Plantation drive





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Environment Day Celebration



VAN Mahotsav - Video Reel Making Competition



Van Mahotsav - Plantation Drive



Van Mahotsav Slogan Writing Competition



**Plantation Drive**  
Venue: College campus  
Timing: 10:30 am  
Date: Tuesday (5th Sept 2017)

**Programme**

1. Herbal garden
2. Herbal plants
3. Herbal basket
4. Aromatic herbs
5. Chemistry herbs
6. Herbal plants
7. Fragrant plants
8. Ornamental plants
9. Common plants

**For Queries:**  
Ankit Tiwari | 8862391606  
Ankit Puriyani | 9650955225

**BHOOMI: THE ECO CLUB SOCIETY**  
presents  
**Save the Planet in a *NEEDLE* Way**  
Come Join Us  
**Plantation Drive**  
Date: Tuesday (5th Sept 2017)  
Venue: Herbal Garden  
Timing: 10:30 am

Ankit Tiwari | 8862391606 | Ankit Puriyani | 9650955225

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**THE ECO CLUB SOCIETY**  
Kirori Mal College  
welcomes  
**Dr. Faiyaz A. Khudsar**  
Scientist Incharge  
Yamuna Biodiversity Park,  
Centre for Environment  
Management Of Degraded  
Ecosystem (CEMDE)  
University of Delhi  
**For a Seminar on:**  
**Biodiversity Conservation through Ecological  
Restoration**

30th October | 11am onwards  
>Academic Auditorium<

Registrations - 9:30am  
onwards (library lawn)



Poster making activity





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