

E-Mail ID. Website

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: 07753-253210 : 2809 : C-22387

QUALITY AUDITS ON ENVIRONMENT AND ENERGY (7.1.6)

1. Green Audit and Environmental Audit : -

The policy goal of the Government Niranjan Kesharwani College, Kota green audits are: -

- Identification and documentation of college campuses on Tree, Nob, Shrub and Medicinal Plants are recorded.
- Increase environmental awareness throughout campus and motivate all stakeholders • for optimized sustainable use of available resources.
- To achieve the aforementioned goals of Government Niranjan Kesharwani College, Kota green audit commits towards the following objects: -
- To identify current and emerging environmental issues. •
- Impact the environment.
- To create awareness •

The methodology adopted to conduct the green audit will have the following components: -

- Onsite field visits were conducted by the Green Audit team.
- Different standard products were followed to documentation and estimate the Floral • and Faunal account.

Suggestion and Recommendation of Audit team: -

- Future plans of construction and activities should be based on the landscape. •
- The Botanical garden (Haritima) and Jungle area need to be conserved.
- v The tree planted needs to be merged regularly.



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Green Audit Register

Government Niranjan Kesharwani College, Kota

Dist. - Bilaspur (C.G.)

Internal Quality Assurance Cell (IQAC)

Editor in Chief

Prof. B.L.Kashi

Principal

<u>Editor</u>

Dr. K.P. Namdeo, Department of Botany

Government Niranjan Kesharwani College, Kota, Bilaspur (C.G.)

A-so PRINCIPAL

Bowt. Miranjan Kesharwani Collay



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Green Audit Assessment Team

- 1. Dr. K.P. Namdeo : Head of Department, Botany
- 2. Prof. K. Minj : Department of Geography
- 3. Prof. Y.K. Upadhyay : Department of Physics
- 4. Shri Lalji Paikra : Lab Tech, Department of Botany,

Technical Assistant

5. Smt. Diksha Naidu : Lab Asst. Department of Botany

PRINCIPAL Miranjan Kesharwani Collay Kota Dist - Bilaspur(C.G.)

<u>Main Objective of Green Audit –</u>

The main objective carrying out Green Audit are following: -

- 1. Geographical Location
- 2. Floral and Faunal Diversity
- 3. Meteorological Parameter
- 4. Energy Consumption
- 5. Ambient Environmental Condition
- 6. Awareness and Training on Sustainable for Students

Introduction: -

Green Audit is a process of identification, recording, reporting and analysis of components of floral and faunal diversity within the campus. It aims to analyze green beaches within and outside of the concerned site, which will have an impact on the eco-friendly environment. Green Audit provides direction for improvement of the condition or environment. There are various factors that have determined growth of carrying out green audits.

Green Auditing: -

The college adopted the green campus system for environmental conservation and sustainability.

There are main three pillars: -

Ø Positive impact on occupant health and performance and 100% graduated demonstrating environmental literacy.

Ø The goal is to reduce Co₂ emission energy and water use.

Ø Greening atmosphere where students can learn and be healthy.

Hand Use Data: -

- 1. Campus area in Sq.Mts. 651000 Sqr,Mts.
- 2. Built-up area in Sq.Mts. 21058.24 Sq.Mts.
- 3. Plantation Area in Sq.Mts. 26808.34 Sq.Mts.

Methodology

The purpose of Green Audit of Government Niranjan Kesharwani College, Kota, Bilaspur (C.G.) is to ensure that practices followed in the campus are in accordance with the green policy adopted by the institution. The methodology included preparation and filling up a questionnaire. Physical inspection of the campus observation and review of the documentation data analysis measurement and recommendation, some data have also been taken from the students research work carried out by various science departments of college.

Three Diversities of Government Niranjan Kesharwani College, Kota

Government Niranjan Kesharwani College, Kota, Bilaspur (C.G.) within the geo possession between latitude 22°18'0.00"N and longitude 82°01'48.00"E, in the location in Bilaspur district headquarter. Its eco campus is of an area of about 15 Acres. The area is immensely diverse with a variety of the tree species performing a variety of functions. Most of the tree species are planted in different periods of time by various plantation programmes organized by the authority and become an internal part of the college.

The trees of the college have increased the quality of life of not only the college fraternity but also the pupils around the college in terms of contributing it out towards the environment by providing oxygen, improving air quality, climate amelioration, conservation of water, preserving soil and supporting wildlife. Controlling climate by moderation the effect of Sun, rain and winds, leaves absorb and filter the Sun radiation rays.

Many animals are dependent on these trees mainly for food and shelter. A recent study has revealed that the rich diversity of tree species of about 48 species belonging to 27 families have sequestrated a total 362.65 ton of organic carbon. Thus the college has played a significant role in maintaining the environment of the entire tree following are tree species noted on the second part of Register.

Faunal Diversity in College Campus: -

Government Niranjan Kesharwani College, Kota, Bilaspur (C.G.). The faunal diversity of college campus has been studied and documentations as below: -

- 1. Common Maina
- 2. House Sparrow
- 3. Crow
- 4. Snake
- 5. ButterFly
- 6. Bulbul
- 7. Oleander mouth
- 8. Cattle Owl
- 9. Slender Skimmer

Green Audit Final Report

2016-17 to 2019-2020

S. N	Ye	Name of Plant	Total No. of Plant	Total Measu	rement of Plant
1	2016-17	Tree Plant 46 Medicinal 40 Herbal 19	105	242 64 113	419
2	2017-18	Tree Plant 48 Medicinal 42 Herbal 20	110	246 116 66	428
3	2018-19	Tree Plant 50 Medicinal 44 Herbal 21	115	251 119 68	438
4	2019-20	Tree Plant 52 Medicinal 45 Herbal 22	119	255 123 72	450
5	2020-21	Tree Plant 53 Medicinal 46 Herbal 23	122	258 126 75	459

1. Dr. K.P. Namdeo

- 2. Prof K. Minj
- 3. Prof. Y.K. Upadhyay
- 4. Shri Lale Painkra
- 5. Smt. Diksha Naidu



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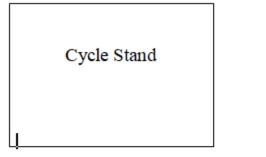
GREEN CAMPUS INITIATIVES

Our College has a beautiful green campus. We have skillfully planted the plants like, Pippel, Neem, Bargad, Ashok, Tulsi so as to make the campus fully oxygen. The greenery has remained useful in developing Oxygen park in our college.

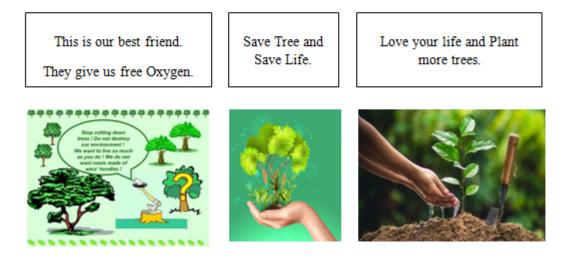
Tobacco and Tobacco products are strictly prohibited in the college and consuming tobacco and tobacco products is a punishable offence. The instruction regarding this has already been given to the students and the staff members. The boards are displayed at various places in the college.



To avoid the air pollution the vehicles are not allowed in the campus, but they are parked in the parking area. Our college has a separate parking area to avoid pollution.



Various boards for the awareness of our college at the environmental control, noise, <u>control</u> tobacco free campus, conservation of energy recycling of resource, tree plantation and environmental policy of college have been displayed for all the stake holders.



The campus of Government Niranjan Kesharwani College, Kota in green campus which mention the following flora: -

- 1. Left side of Principal Office
- 2. In front of Botany Lab and Zoology Lab
- 3. Cycle Stand Area
- 4. In front side of the Parking for Staff

1. Left side of Principal Office

S.No.	Botanical Name	Habit	No. of plants	Common Name
1	Vinca Rosea	Herb	06	Sada Suhagan
2	Thuja nevtaks	Herb	03	Thuja
3	Saraindica	Tree	03	Ashoka
4	Ziziphus	Tree	02	Ber
5	Bryophyllum	Shrub	10	Patharchatta
6	Sizymum Common	Tree	01	Zamun

2. <u>In front of Botany Lab and Zoology Lab</u>

S.No.	Botanical Name	Habit	No. of plants	Common Name
1	Cantaranth Roses	Herb	10	Sada Suhagan
2	Calotropis procera	Shrub	06	Madar
3	Hibiscus Rosa	Shrub	01	Gudhal
4	Lantana Camara	Shrub	01	Ghanar
5	LHyereahris	Tree	01	Palm
6	Allostronia	Tree	01	Ramphal

1. <u>In front of Cycle Stand</u>

S.No.	Botanical Name	Habit	No. of plants	Common Name
1	Ficus Rasihorsa	Tree	01	Searum
2	Mariya oleifera	Tree	01	Suhagan
3	Anthocephalus Kedabe	Tree	01	Kudam
4	Ziziphus	Tree	01	Ber

2. <u>In front of Parking of Staff</u>

S.No.	Botanical Name	Habit	No. of plants	Common Name
1	Bougainvillea	Shrub	01	Boganvel
2	Delonix Regia	Tree	01	Gulmohar
3	Michella Champa	Tree	01	Champa



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WATER CONSUMPTION AUDIT

The indicator addresses water consumption, water source, stream water are the applicants and fixtures. Aquifer depletion and water contamination are taking place at unprecedented rates. It is therefore essential that any environmentally responsible institution should examine its water use practices.

S. No.	Water Source for	Consumption
	usage	(Litres per week)
01	Canteen	1000 litres
	Laboratories	5000 litres
	a) Chemistry	0
02	b) Botany	120 litres
02	c) Zoology	80 litres
	d) Physics	0
	e) Geography	0
03	Garden	2000 litres

Principal



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"BIODIVERSITY AUDIT"

All plants and animal species of Govt. Niranjan Kesharwani College, Kota, Bilaspur including humans are linked to gather in a complex web life. We depend upon biodiversity for our survival. Biodiversity is the key to a healthy ecosystem and ultimately a healthy planet. It keeps the air and water clean and regulates our climate and provides food, shelter, medicine and other useful products. Each part within this complex web diminishes a little when one part weakens or disappears.

The tree works hard to keep the air we breathe clean and healthy. Their leaves take in much of the poisonous unwanted carbon dioxide in the air and replace it with the oxygen we need for healthy living. In this process, the plants with the help of sunlight, water, minerals and the green materials called Chlorophyll within the leaves change the carbon dioxide into food for themselves. When doing this they release oxygen into the air which is vital for life on earth. The roots of trees dig deep into the earth and hold it together so that the rain and wind cannot wash or blow it away. This is very important as the earth has only a very thin layer or fertile soil covering it.

IQAC Coordinator Govt. Niranjan Kesharwani College Dist.-Bilaspur (C.G.)

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ENERGY AUDIT

Government Niranjan Kesharwani College, Kota is situated at Bilaspur district of Chhattisgarh. The college is affiliated with Atal Bihari Vajpayee University, Bilaspur (C.G.) This college was established in 1984. Government Niranjan Kesharwani College campus consists of 13 Teaching Rooms and Laboratory Room, office, sports room, Principal room and Conference hall, Staff room, various laboratories, Physics, Chemistry, Botany, Zoology, Geography for facilitating student accommodation to many rural boys and girls students. This college also provides gym facilities to students undergoing various types of physical education. There is also a beautiful library where students studying in various branches have facilities to refer books. The college developed a garden with various medicinal plants.

ENERGY AUDIT: -

- 1. Inventory of various electrical load
- 2. CSPDCL Bill study and working out average cost power.
- 3. Identification of various energy conservation measures and saving opportunities.
- 4. Review of awareness programmes if any for optimum use of electricity and water as well as its saving.
- 5. Review of implemented non-conventional energy installation and application in college campus and its quantification.

ENERGY AUDIT METHODOLOGY: -

The audit involves visiting physical possession of load and carry out of load and carry out of inventory and load. Due measurement of electrical load of equipment and circuit is carried out. Energy Bill from CSPDCL is audited and studies for KWH requirement and how efficiently energy is used. Various possessions are interested familiarized with energy audits involved for successful and result oriented energy audit. Energy conservation and saving opportunities are identified during round and measurement for implementation.



Energy Audit Report

of

Govt. Niranjan Kesharwani College, Kota, Bilaspur (C.G.)

Submitted To

Principal

Govt. Niranjan Kesharwani College, Kota, Bilaspur (C.G.)

Submitted By

Dr. K.P. Namdeo

Head, Dept. of Botany

Govt. Niranjan Kesharwani College Kota, Bilaspur (C.G.)



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Energy Audit and Energy Saving Assignment Team

- 1. Dr. K.P. Namdeo
- 2. Prof. Y.K. Upadhyay
- 3. Shri R. Rathia

- Head, Department of Botany
- **Department of Mathematics**
- Lab. Tech., **Department of Physics**
- 4. Shri R.K. Vishwakarma : Account In-charge

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ENERGY AUDIT

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System studied during Energy Audit: -

1. Lighting fixtures have been physically in various campuses verified and recorded.

2. Reviewed implemented non-conventional energy installation and application in college for use.

3. Electricity Bills served by CSPDCL are verified and the cost of power.

4. It is reviewed about the Awareness programme if any for optimum use of electricity and water as well as its saving undertaking the college lever. Instruction cum request sign boards shall be displayed near each switch board and toilet block like a photo, poster and banner. Bathroom to influences and guide to user to arrest misuse and wastage of power and water

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EXECUTIVE SUMMARY - 2015-16, 2016-17, 2017-18, 2018-19, 2019-20

S. No.	Months	Bill Amount	Meter Service No.
01	06.07.2015	7620.00	1000623328/33511490- 07-102080
02	05.08.2015	8270.00	1000623328/33511490- 07-102081
03	30.09.2015	8300.00	
04	28.10.2015	6300.00	
05	24.11.2015	7400.00	
06	04.12.2015	16590.00	
07	28.01.2016	8757.00	
08	04.02.2016	2670.00	
09	01.03.2016	8320.00	
10	27.05.2016	8000.00	
11	13.06.2016	4870.00	
12	21.09.2016	21180.00	
13	03.10.2016	7200.00	
14	25.11.2016	7340.00	
15	04.12.2016	4680.00	
16	01.02.2017	8830.00	
17	07.04.2017	7100.00	
18	10.07.2017	11040.00	
19	01.08.2017	7770.00	

20	24.08.2017	5960.00	
21	01.11.2017	5840.00	
22	01.01.2018	11050.00	
23	30.01.2018	27160.00	
24	23.08.2018	17590.00	
25	26.09.2018	17650.00	
26	27.11.2018	17260.00	
27	23.01.2019	17830.00	
28	19.02.2019	16550.00	
29	30.03.2019	5190.00	
30	03.05.2019	13570.00	
31	31.05.2019	8230.00	
32	16.09.2019	5930.00	
33	17.10.2019	8330.00	
34	17.01.2020	17080.00	
35	11.05.2020	10410.00	
36	22.06.2020	11160.00	
37	26.08.2020	22710.00	
38	07.11.2020	26850.00	
39	21.12.2020	27180.00	

Source of Energy: -

-

Government Niranjan Kesharwani College, Kota, Bilaspur uses energy as following:

- 1. Electricity from CSPDCL
- 2. High Speed Diesel Generator

Following are the major consumer of electricity in the facility: -

- Computer
- ✤ Lighting
- Air Conditioning
- ✤ Fans
- Other Lab Equipments
- Printers
- Xerox Machine
- ✤ CCTV
- ♦ UPS
- LCD Projector
- ✤ Flood Light
- Pumping Motor

Energy Saving Calculation: -

- 1. Total Number of Conventional Tube Light 111
- 2. Conventional Tube Light average power 40 W
- 3. LED Tube Light average power -20 W
- 4. Difference Power soaked Tube Light (40-20) 20 W
- 5. LED Tube Light average $\cos t 450$ Rs.
- 6. Total Number of Conventional Fans -139 50 W 43 W
- 7. Total Number of Conventional Computer 12
- 8. Total Number of Conventional Printer -02
- 9. Total Number of Conventional AC 01
- 10. Total Number of Conventional Lab Equipment 22

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Date: 25.07.2018

It is to inform all the students of Govt Niranjan Kesharwani College, Kota Bilaspur that on 25.07.2018, there will be an "Energy Awareness programme" organized at room no. 26 at 12:30 PM, in which all the students are necessary to attend the programme.

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ENERGY SAVING AWARENESS programmeME

Date: 25/07/2018

The role of the Student Community in achieving Energy Efficiency in households and institutions was highlighted at an awareness only programme, "Energy Saving Awareness programme" organized in Government Niranjan Kesharwani College, Kota, Bilaspur room No. 26 at the time 12:30 PM. In the programme, the Main Chief Guest was Electric Board, Kota and programme President was Principal, Government Niranjan Kesharwani College, Kota and Teaching and Non-Teaching Staffs and the role of College Students.

The Students were briefed about basic rules to be followed towards power conservation and electrical safety. Speaking on the occasion Chief Guest, Electricity Office, Kota to the student aware of energy saving techniques and also sensitivities their parents and person the need to conserve energy. Students should prevail upon their parents to go in only for energy efficiency. Use Standard equipment and quality wiring efficiency.

The Energy Saving Awareness programme President, Principal of College, speaking on the Prof. B.L. Kashi to the student were given tip on proper operation of refrigerators, air conditioners, television, household, lighting and other household applications, also applied to the student to stagger the use of water motors, fans, bulb, tube lights and other institute equipments to reduce the peak hour demand between 6:00 AM to 9:00 AM and 6:00 PM to 09:00 PM. The programme in-charge Dr. K.P. Namdeo stressed on Safety procedures and ways to prevent accidents.

An Energy Saving Awareness programme conducted for the students in Government Niranjan Kesharwani College, Kota nearly 60 students, Teaching and Non-Teaching Staff took post the programme.

IQAC Coordinator Govt. Niranjan Kesharwani College Dist.-Bilaspur (C.G.)

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Date: 21.01.2019

It is to inform all the students of Government Niranjan Kesharwani College, Kota Bilaspur that on 23.01.2019, there will be an "Energy Awareness programme" organized at room no. 26 at 12:30 PM, in which all the students are necessary to attend the programme.

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Energy Saving Awareness programme

Date: 23/01/2019

Energy Saving Awareness programme is organized by Government Niranjan Kesharwani College, Kota, room no 26 at the time 12:30 PM. In the programme, the Chief Guest was Junior Engineer, Electric Office, Kota, and the President was Principal, Government Niranjan Kesharwani College, Kota, programme Topic "How to use Energy efficiently in our College" Speaking of the Chief Guest, Electric Office, Kota: -

1. In the Computer Laboratory, each student is to turn off his or her CPU and Monitor at the end of each class.

2. In the Computer Laboratory, teachers should check that all equipment (Computer, Printer etc.) are turned off at the end of the day.

3. In the administrative office, place all equipment on a surge protector or power strip that can be turned off by one switch at the end of the day.

4. In the staff room, the assigned Computer Printer etc. was plugged out at the end of the day.

5. Switch off Refrigerator, TV Set, Motor Pump set completely.

An Energy Saving Awareness programme conducted for the students in Government Niranjan Kesharwani College, Kota and so Students, Teaching and Non-Teaching Staff took part the programme.





