

GOVT KAVYOPADHYAY HIRALAL COLLEGE ABHANPUR RAIPUR CHHATTISGARH

Report of Green Audit

2021-22



Green Audit Committee

1. Coordinator

Dr. Kritika Jyoti Namdeo

Assistant Professor

(Botany)

2. External Auditor

Dr. Avinash Sharma

Asst.Prof. (Botany)

Govt.Nagarjuna Pg College of Science

Raipur C.G.

3. Internal Auditor

Dr. Swati Sahu

Assistant Professor

4. Mr. Vinod Dhurve

Non Teaching Staff

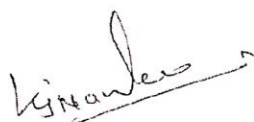
Botany

Certificate

This is to certify that Green Audit for Govt. Kavyopadhyay Hiralal College Abhanpur has been conducted in 2021-22. The data used in the study are original in nature. Photographs used in the report are taken directly by audit team.

Place: Govt. K. H.
College, Abhanpur,
Raipur

Date: 2.6.22



Coordinator

Dr. Kritika Jyoti Namdeo

Assistant Professor (Botany)



External Auditor

Dr. Avinash Sharma

Asst. Prof. (Botany)

Govt. Nagarjuna P.G.

College of Science, Raipur



Internal Auditor

Dr. Swati Sahu

Assistant Professor

Introduction

Green auditing is the process of identifying and determining whether institutions' practices are eco-friendly and sustainable. The main objective to carry out a green audit is to check green practices followed by the university. Due to Modernization and industrialization human life have made more luxurious and comfortable. Simultaneously, they are responsible for voracious use of natural resources, exploitation of forests and wildlife, producing massive solid waste, polluting the scarce and sacred water resources, and finally making our mother Earth ugly and inhospitable. Today, people are getting more familiar with global issues like global warming, greenhouse effect, ozone depletion, 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.

About the College:

In 1989, Government Kavyopadhyay Hiralal College Abhanpur, was established. The area of college is 15.8 acre. The college campus is surrounded with boundary wall from all the sides. At the back side of the college, buildings, one small medicinal garden is situated. Vegetation of college campus consists of both wild and cultivated plants of various habits i.e., trees, herbs, shrubs, climbers (annual and perennial). Plant diversity is the maximum in the Rainy season and very less in the summer season. So many potted plants are also in the college campus. Many potted plants are also there presented by U.G. students of the Botany department, and by students of NSS as a part of the project of conservation.

There are many economically important following plants are present on our college campus:

- Cultivated and wild plants
- Medicinal Plants
- Ornamental plants

• Objectives:

The main objective of the green audit is to promote the environment management and conservation in the College campus. The main objectives of carrying out Green Audit are:

- To document the floral diversity of the college.
- Increase environmental awareness throughout campus.
- To create a green campus.
- To motivate staff for optimized sustainable use of available resources
- Identify strengths and weaknesses in green practices
- To establish and implement Environmental Management Plan in various departments

Methodology: -

Study for green audit on the vegetation of the college campus was started in 2020 and is being continued till date.

- Studies of the herbs around the college campus including weeds.
- Complete survey was made of the shrub and trees.
- Photographs of the vegetation of the college campus.

Observation & Result:

Cultivated and Wild Plants :(Herb Shrub and Climber)

S.No.	Common Name	Botanical Name	Family	Category	Wild/Cultivated
1	Aak	<i>Calotropis procera</i>	Asclepiadaceae	Shrub	Wild
2	Adusa	<i>Justicia adhatoda</i>	Acanthaceae	Shrub	Cultivated
3	Bala	<i>Sida cordifolia L.</i>	Malvaceae	Herb	Wild
4	Bariera	<i>Sida acuta</i> Burm.f.	Malvaceae	Herb	Wild
5	Ber	<i>ZizipusZuzuba</i>	Rhamnaceae	Shrub	Cultivated

6	Bhaskatia	<i>Solanum xanthocarpum</i> Schrad	Solanaceae	Herb	Wild
7	Bhringraj	<i>Eclipta alba</i> L	Bhringraj	Herb	Wild
8	Baigan	<i>Solanum melongena</i>	Solanaceae	Herb	Cultivated
9	Bhui amla	<i>Phyllanthus niruria</i> auct.	Euphorbiaceae	Herb	Wild
10	Cardemom	<i>Elettaria deckenii</i>	Companulaceae	Shrub	Cultivated
11	ChandeniGenda	<i>Tegetuspetula</i> L.	Compositae	Herb	Cultivated
12	Chhrota	<i>Cassia tora</i> l	Leguminosae	Herb	Wild
13	Coatbuttons	<i>Tridax procumbens</i> L.	Compositae	Herb	Cultivated
14	Caronda	<i>Carissa congesta</i>	Apocynaceae	Shrub	Cultivated
15	Datura	<i>Datura alba</i>	Solanaceae	Shrub	Wild
16	Doob Ghans	<i>Cynodondactylon</i> L.	Poaceae	Herb	Wild
17	Dudhi	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Herb	Cultivated
18	Genda	<i>Tegetus erectus</i> L.	Compositae	Herb	Cultivated
19	Gurhal	<i>Hibiscus rosa sinensis</i>	Malvaceae	Shrub	Cultivated
20	Hedge	<i>Duranta erecta</i>	Verbinaceae	Shrub	Cultivated
21	Kagajphool	<i>Bougainvillea glabra</i> Comm. ex Juss	Nyctaginaceae	Shrub	Wild
22	Kalmegh	<i>Andrographis paniculatus</i>	Amaranthaceae	Herb	Wild
23	Kamcher	<i>Alternanthera sessilis</i> L	Amaranthaceae	Herb	Wild
24	Kanghi	<i>Abutilon indicum</i> L.	Malvaceae	Herb	Wild
25	Kokilaksha	<i>Asteracantha longifolia</i>	Acanthaceae	Herb	Wild
26	Kudaliya	<i>Desmodiumtriflorum</i> L.	Leguminosae	Herb	Wild
27	Kuppi	<i>Acalypha indica</i> L.	Euphorbiaceae	Herb	Wild
28	Nirgundi	<i>Vitex Nugundo</i>	Lamiaceae	Shrub	Cultivated

30	Papaya	<i>Carica p30apaya</i>	Caricaceae	Shrub	Cultivated
31	Pili Kateri	<i>Argemone mexicana L.</i>	Paperveraceae	Herb	Wild
32	Palm	<i>Phoenixroebelenii</i>	Pamaceae	Shrub	Cultivated
33	Rukhmani	<i>Ixora coccinia L.</i>	Rubiaceae	Herb	Cultivated
34	Rajnigandha	<i>Polianthustuberosa</i>	Asparagaceae	Herb	Cultivated
35	Sadabhar	<i>Catharanthus roseus G.Don</i>	Apocynaceae	Herb	Wild
36	Shankhpushpi	<i>Evolvulusalsinoides L.</i>	Convolvulaceae	Herb	Wild
37	Sindoor	<i>Bixa Orellana</i>	Malvaceae	Shrub	Cultivated
38	Tagetus	<i>Mexiacan marigold</i>	Astaraceae	Shrub	Wild
39	Tarmuriya	<i>Trichodesma zeylanicum Burm.f.</i>	Boranginaceae	Herb	Wild
40	Torki	<i>Indigofera linifoliaL.F.</i>	Leguminosae	Herb	Wild
41	Yellow flame	<i>Peltophorum dubium</i>	Fabaceae	Shrub	Wild
42	Purple Allamanda	<i>Allamanda blanchetil</i>	Apocynaceae	Climber	Wild
43	Rose	<i>Rosa damascena</i>	Rosecae	Shrub	Cultivated
44	Jalgulab	<i>Pistia Stratiotes</i>	Araceae	Aquatic plant	Cultivated
45	Parijaat	<i>Comritum indicum</i>	Combritaceae	Climber	Cultivated

List of Trees:

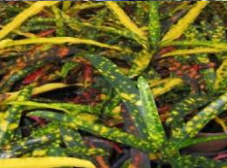
S.No .	Common Name	Botanical Name	Family	Wild/Cultivated
1	Kachnar	<i>Bahunaverigeta</i>	Leguminosae	Wild
2	Jamun	<i>Syzygiumcamii</i>	Myrtaceae	Wild
3	Gulmohar	<i>Delonix regia</i>	Fabaceae	Planted
4	Sheeshum	<i>Delbergiasisso</i>	Fabaceae	Cultivated
5	Sweet neem	<i>Murraya koenigii</i>	Rutaceae	Cultivated

6	Krishnachura	<i>Caesalpinia pulcherrima</i> L.	Leguminosae	Wild
7	Chhatim	<i>Alstonia scholaris</i>	Apocynaceae	Wild
8	Babool	<i>Acacia arabica</i> F.	Leguminosae	Wild
9	Kachnar	<i>Bauhinia purpurea</i> L.	Leguminosae	Wild
10	Pipal	<i>Ficus religiosa</i>	Moraceae	Planted
11	Guava	<i>Psidium guajava</i>	Myrtaceae	Cultivated
12	Banyan	<i>Ficus bengalensis</i>	Myrtaceae	Cultivated
13	Neem	<i>Azadirachta indica</i>	Meliaceae	Cultivated
14	Awala	<i>Embellica officinalis</i>	Phyllanthaceae	Cultivated
15	Gangaimli	<i>Pithecellobium dulce</i> L.	Leguminosae	Cultivated
16	Amaltash	<i>Cassia fistula</i> L.	Leguminosae	Wild
17	Karanj	<i>Pongamia pinnata</i> L.	Leguminosae	Wild
18	Parijat	<i>Nyctanthes arbor-tristis</i> L.	Oleaceae	Wild
19	Mango	<i>Mangifera indica</i>	Anacardiaceae	Cultivated
20	Sitaphal	<i>Annona squamosa</i> L.	Annonaceae	Cultivated

List of Ornamental Plants:

S.No .	Common Name	Botanical Name	Family Name	Photo
1.	Corn plant	Dracaena Fragrans	Asparagaceae	
2.	Shatavari,	Asparagus racemosus	Asparagaceae	
3.	Boat lily,	Tradescantia spathacea Sw.	Commelinaceae	
4.	Purple Heart	Tradescantia albiflora	Commelinaceae	
5.	Rhoeodiscolor	Tradescantia spathacea	Commelinaceae	
6.	Jew Plants	Tradescantia zebrina	Commelinaceae	
7.	Fan leaved palm	Lacula grandis	Palmaceae	
8.	Areca palm	Dypsis lutescens	Palmaceae	

9.	Coleus sp	<i>Coleus</i> (<i>Solenostemon</i>)	Lamiaceae	
10.	Coleus	<i>Coleus</i> <i>Solenostemon</i>	Lamiaceae	
11.	Coleus	<i>Coleus</i> <i>Solenostemon</i>	Lamiaceae	
12.	Good-Luck Plant	<i>Cordyline</i> <i>terminalis</i>	Agavaceae	
13.	Ti Plant	<i>Cordyline</i> <i>terminalis</i>	Agavaceae	
14.	Desert Rose	<i>Adenium</i> <i>obesum</i>	Apocynaceae	
15.	Tagar variegated	<u>Valerianatagar</u>	Apocynaceae	
16.	Chandni	<u>Tabernaemontana</u> <u>divaricata</u>	Apocynaceae	
17.	Dal Chini	<i>Cinnamomum</i> <i>Vernum</i>	Luraceae	
18.	Cycas	<i>Cycas revoluta</i>	Cycadaceae	

19.	Ghrirkumari	<i>Aloe vera</i>	Asphodelaceae	
20.	Garden Croton	<i>Codiaeum spp.</i>	Euphorbiaceae	
21.	Poinsettia	<i>Euphorbia pulcherrima</i>	Euphorbiaceae	
22.	Christ plant	<i>Euphorbia milli</i>	Euphorbiaceae	
23.	Croton	<i>Codiaeum sp.</i>	Euphorbiaceae	
24.	Crotons	<i>Codiaeum Variegatum</i>	Euphorbiaceae	
25.	Croton	<i>Codiaeum variegatum</i>	Euphorbiaceae	
26.	Croton Mammi	<i>Codium varigatum</i>	Euphorbiaceae	
27.	Zanzibar	<i>Codium varigatum</i>	Euphorbiaceae	

28.	Danda Thor, Churee,	<i>Euphorbia royleana</i>	Euphorbiceae	
29.	Dumbcane	<i>Dieffenbachia amoena</i>	Araceae	
30.	Elephanr Ear	<i>Caladium spp</i>	Araceae	
31.	Spider Lily	<i>Hymenocallis littorails</i>	Araceae	
32.	Money plant	<i>Epipremnum aureu m</i>	Araceae	
33.	Dragon tree	<i>Dracaena margineta</i>	Asparagaceae	
34.	Ixora mau sunset	<i>Ixora coccinea</i>	Rubiaceae	

35.	Haldi	<i>Curcuma longa</i>	Zinziberaceae	
36.	Vaijayanti	<i>Sesbania aegyptiaca</i>	Lamiaceae	
37.	Star Flower	<i>Pentas lanceolata</i>	Rubiaceae	

List of Medicinal Plants:

S.No.	Common Name	Botanical Name	Family	Category
1.	Sarpgandha	<i>Raulfia serpentina</i>	Apocynaceae	Herb
2.	Sadabahar	<i>Vinca rosea</i>	Acanthaceae	Herb
3.	Tulsi	<i>Ocimum sanctum</i>	Lamiaceae	Herb
4.	Snake plant	<i>Dracaenatrifasciata</i>	Asparagaceae	Herb
5	Anjwain	<i>Trachyspermum amna</i>	Umbelliferae	Herb
6	Aswagandha	<i>Withinea somnifera</i>	Solanaceae	Herb
7	Giloy	<i>Tinospor acordipholia</i>	Maninspermeae	Climber
8	Gritkukari	<i>Aloe vera</i>	Liliaceae	Herb
9	Hadjodh	<i>Cissus quaduangularis</i>	Vitaceae	Creeper
10	Haldi	<i>Curcume longa</i>	Zinziberaceae	Herb
11	Kalmegh	<i>Andrographis paniculata</i>	Acanthaceae	Herb
12	Nirgundi	<i>Vitex nugundo</i>	Solanaceae	Shrub

13	Patharchhatta	<i>Kalanchoe adalae</i>	Crassulaceae	Herb
14	Piperment	<i>Mentha pipertia</i>	Lamiaceae	Herb
15	Insulin	<i>Chamaecostus cuspidatus</i>	Costaceae	Herb
16	Tejpatti	<i>Cinnamoomum tamala</i>	Lauraceae	Tree
17	Van Tulsi	<i>Ocimum gratissum</i>	Labiataee	Herb

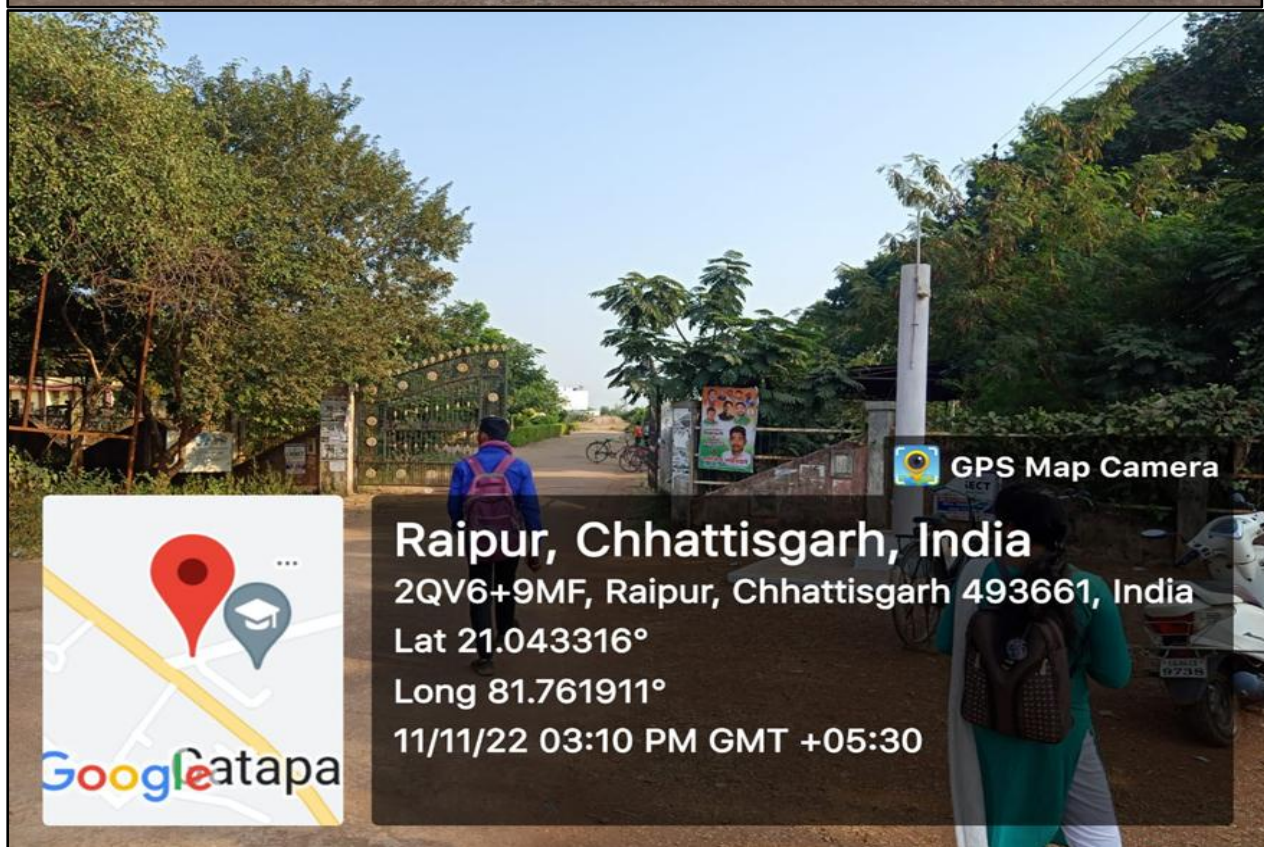
ENVIRONMENTAL POLICY OF THE COLLEGE

There are many activities done by the several departments of the college. The faculties are very active and done different types of activities for sustainable development of environment. Every year, during rainy season, tree plantation is carried out and carefully looked after it. “Go Green Activity.” Plantation plastic bag free environment awareness program various lectures, seminars and awareness program for environment also done by the departments. Being an environmental conscious college, the administration and the students of the college look after the environment carefully.

Future Planning –

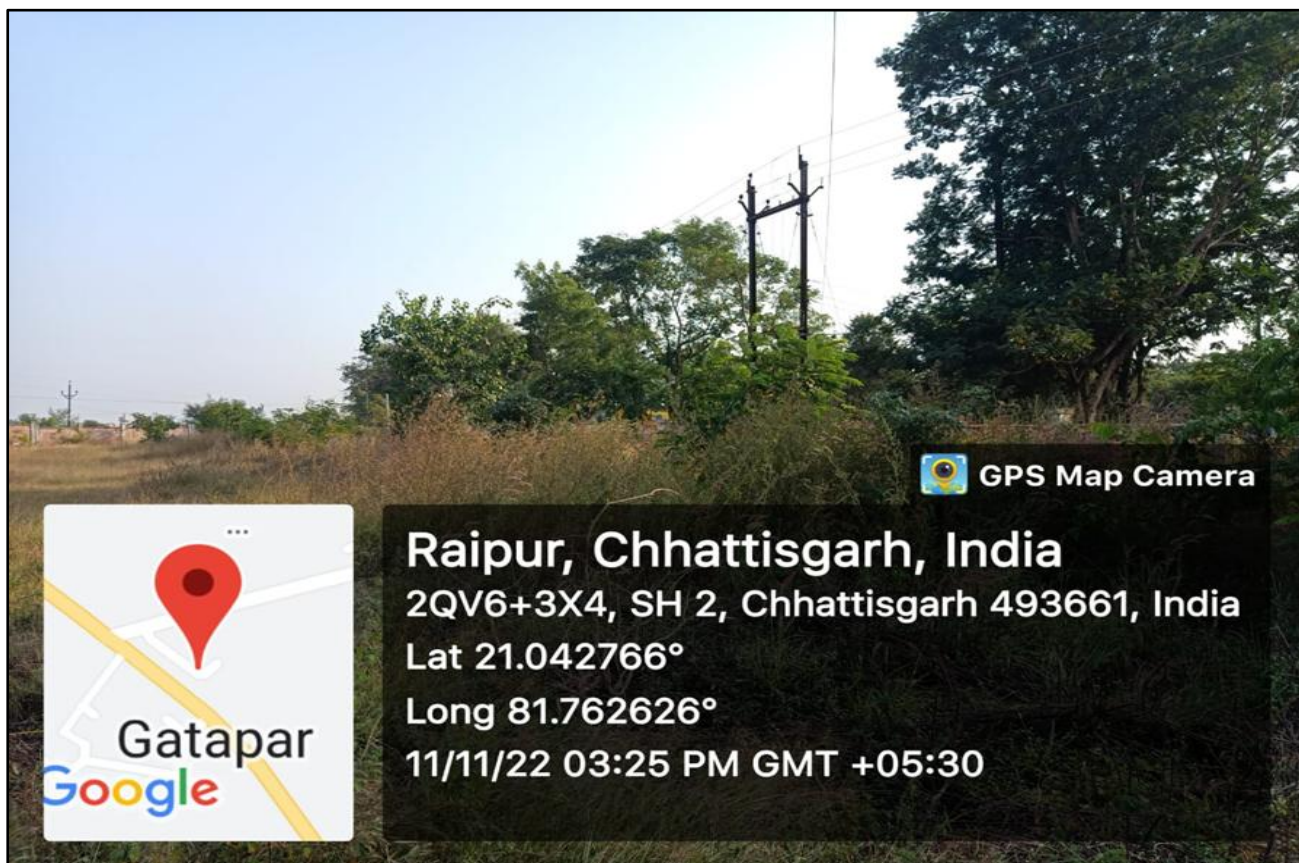
- Green audit will be done regularly with updating the list of vegetation of college campus and surroundings.
- Environment awareness program would be done through different activities.
- Plantation programmes have been organising every year.
- Environment Awareness seminar will be done so that student should be friendly and attracted towards the environment.

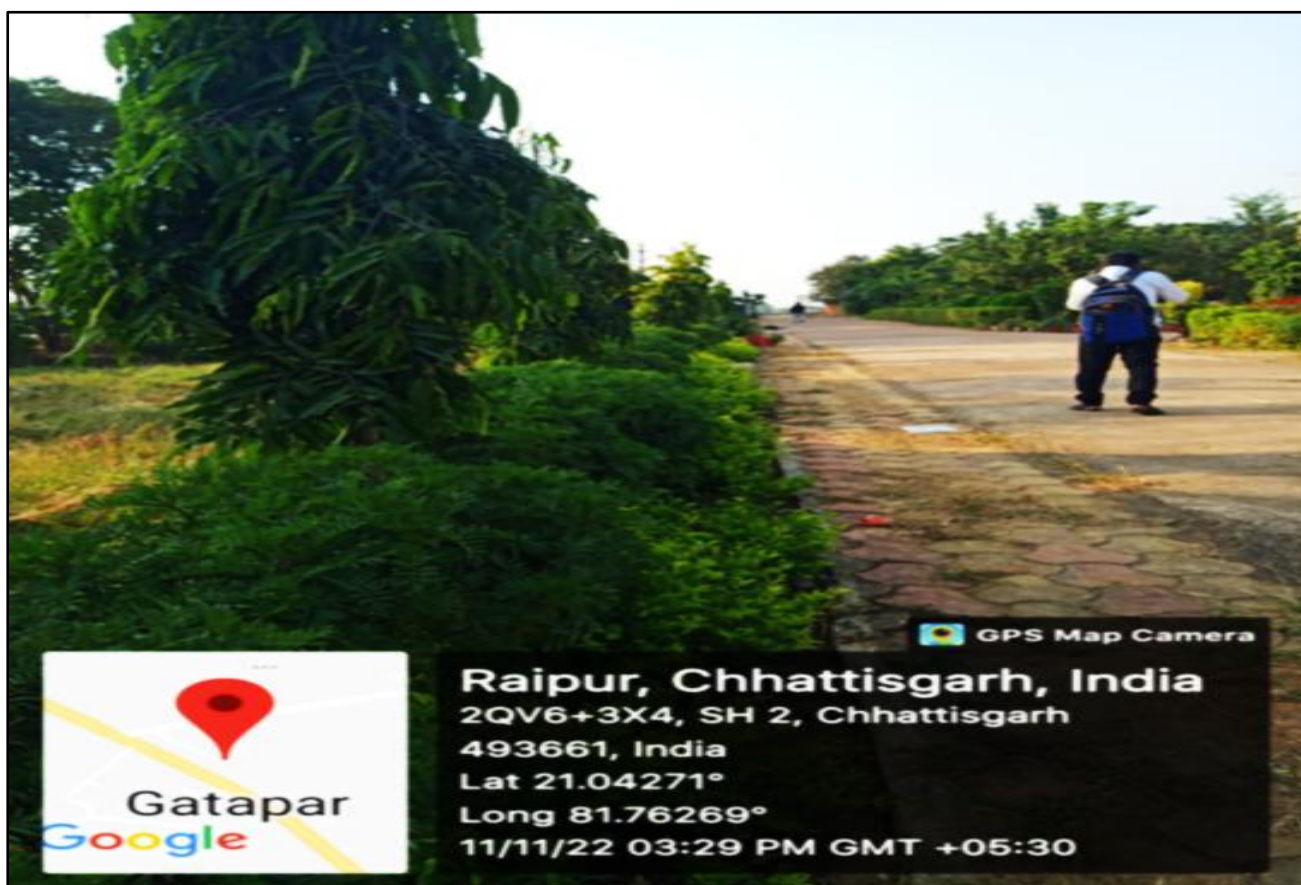
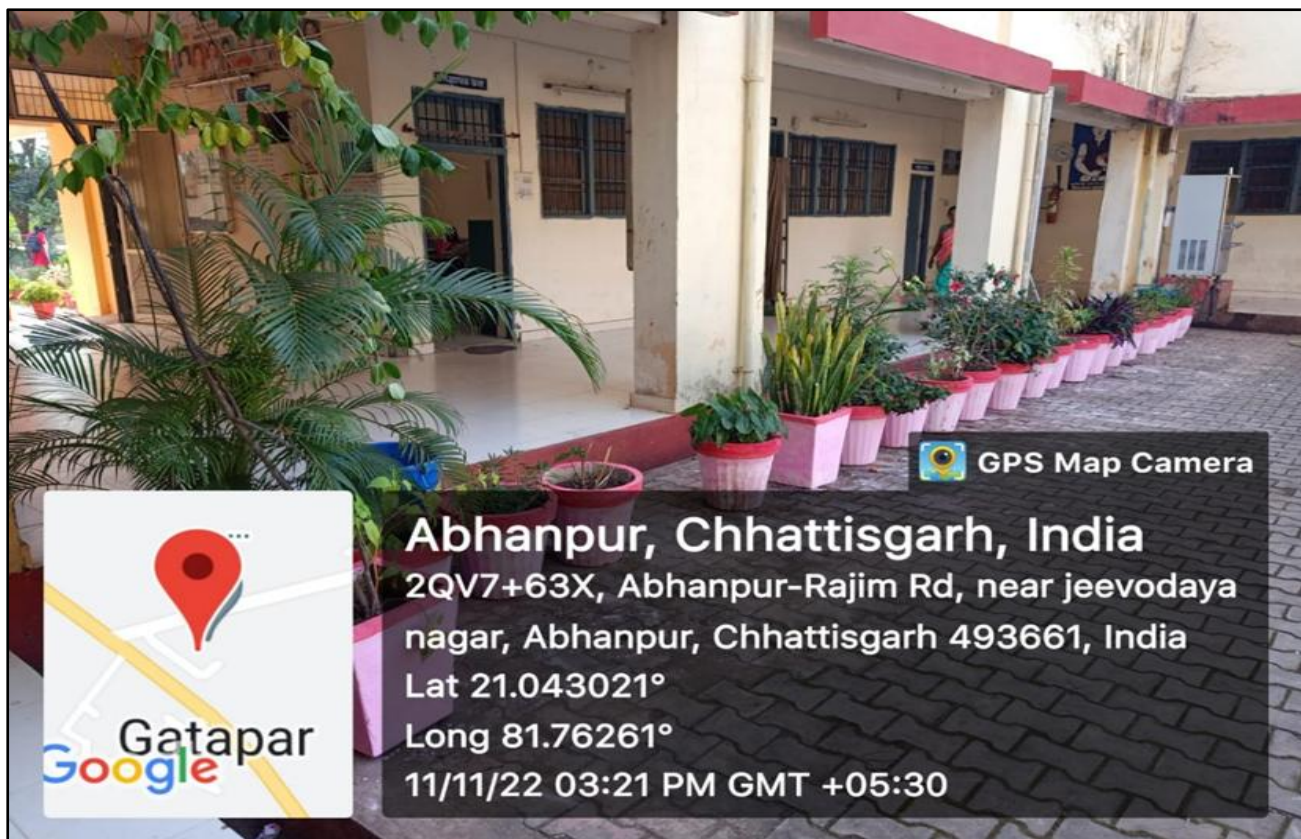
Vegetation of College Campus:











Environment Awareness Program



GOVT.K.H.COLLEGE
ABHANPUR

"Go Green Day"

27/7/2021



Go Green Day

Chandrika sahu
Msc. - 2nd sem.



NAME- POOJA MEHTA (B.COM 2nd year)



DILESHWARI SAHU
M.Sc 2nd sem BOTANY



GOVT.K.H.COLLEGE,
ABHANPUR RAIPUR

"GO GREEN ACTIVITY"

Organized by
Dr.Kritika.J.Namdeo



SAVE TREE SAVE FUTURE

पेड़ लगाओ योगदान ★



Name - Minal sahu
plant Name - Papaya



Name-Durga sahu
class B.Sc 1st



Plant name
papaya













Govt. Kavyopadhyay Hiralal College, Abhanpur, Raipur

Environment Audit Committee

SN	Name	Designation	Committee role
1.	Dr. Avinash Sharma	Asst. Professor Dept. of Botany Govt. Nagarjun P.G. Science College, Raipur	External Auditor
1.	Dr. Deepa Chaturvedi	Asst. Professor Dept. of Chemistry Govt. K. H. College, Abhanpur, Raipur	Auditor
2.	Dr. Kritika Jyoti Namdeo	Asst. Professor Dept. of Botany Govt. K. H. College, Abhanpur, Raipur	Auditor

Environment Audit Certificate

This is to certify that Environmental Audit for Govt. K. H. College Abhanpur, Raipur has been conducted in May-June 2022 for the session 2021 -2022. It evaluated environmental practices within and outside the campus and found that environment conservation methods and practices are followed in the college on the track of sustainable development.

Place: Govt. K. H.
College, Abhanpur,
Raipur

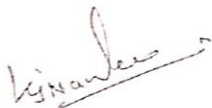
Date: 2.6.22



Dr. Avinash Sharma

External Auditor

Asst. Prof. (Botany)
Govt. N. P. G. College
of Science, Raipur



Dr. KritikaJyotiNamdeo

Auditor



Dr. Deepa Chaturvedi
Auditor

Govt. KavyopadhyayHiralal College, Abhanpur, Raipur

Environment Audit Report

Introduction: The Environment audit aims to analyze environmental practices within and outside the institute, which will affect the eco-friendly atmosphere. Environment audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of university environment. Through the Environment audit, a direction as how to improve the structure of environment can be achieved.

Need for Environment Auditing: Environment auditing is the process of identifying and determining whether institutions practices are eco friendly and sustainable. Environment audit 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 it in to Environmental and clean one. Environment audit provides an approach for it. It also increases overall consciousness among the people working in institution towards an environment.

Goals of Environment Audit:

1. Identification and documentation of Environment practices.
2. Identify strength and weakness in Environment practices.
3. Analyze and suggest solution for problems identified.
4. Assess facility of different types of waste management.
5. To enhance environmental awareness in the campus
6. To identify and assess environmental risk.
7. It will motivate staff for optimized sustainable use of available resources.

Objectives of Environment Audit:

1. To examine the current practices, which can impact on environment such as of resource utilization, waste management etc.
2. To identify and analyze significant environmental issues.
3. Setup goal, vision, and mission for Environment practices in campus.

4. Establish and implement Environment Management in various departments.
5. Assessment for betterment in performance in Environment

Institution Infrastructure:

Govt. College Abhanpur, Raipur is situated on AbhanpurRajim Road has 15.8 acre total campus area out of which 2184 sq. meter is the buildup area.



It has huge open space which is being utilized for plantation and outdoor sports activities. It has two gardens and one botanical garden.



Open space 1



Open space 2

Details of plantation in the campus:

Plants are the backbone of our environment. The college administration, staff and students have put their best efforts for increasing the green cover of the

college. Extensive plantation has been done inside and outside the college building in this regards.



Details of plants in the campus:

The details of plants present in the college campus are as follows:

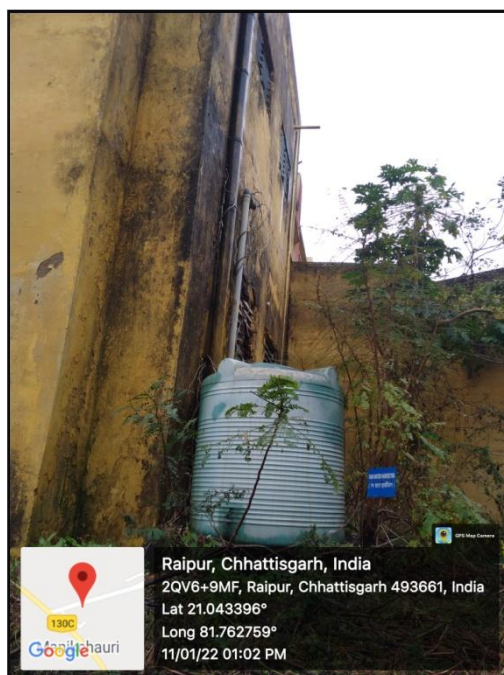
S.N.	Plant	Botanical Name	Family
1.	Ashoka	<i>Saracaasoca</i>	Leguminosae
2.	Amaltash	<i>Cassia fistula L.</i>	Leguminosae
3.	Awala	<i>Emblicaofficinalis</i>	Phyllonthaceae
4.	Babool	<i>Acacia Arabica</i>	Leguminosae
5.	Banyan	<i>Ficusbengalensis</i>	Myrtaceae
6.	Chhatim	<i>Alstoniashlorasis</i>	Apocynaceae
7.	Gangaimli	<i>Pithocelobiumdulce L.</i>	Leguminosae
8.	Guava	<i>Psidiumguajava</i>	Myrtaceae
9.	Gulmohar	<i>Delonixregia</i>	Fabaceae
10.	Jamun	<i>Syzygiumcamii</i>	Myrtaceae
11.	Kachnar	<i>Bahunaverigeta</i>	Leguminosae
12.	Karanj	<i>Pongamiapinnata L.</i>	Leguminosae
13.	Krishnachura	<i>Caesalpinia pulcherrima L.</i>	Leguminosae

14.	Mango	<i>Mangifera indica</i>	Anacardiaceae
15.	Neem	<i>Azadirachta indica</i>	Meliaceae
16.	Parijat	<i>Nyctanthes arbor-tristis</i> L.	Oleaceae
17.	Pipal	<i>Ficus religiosa</i>	Moraceae
18.	Sheeshum	<i>Delonix regia</i>	Fabaceae
19.	Sitaphal	<i>Annona squamosa</i> L.	Annonaceae
20.	Sweet neem	<i>Murraya koenigii</i>	Rutaceae

Water management:

The source of water in our campus is mainly ground water. The college stores water in overhead tanks.

For the optimum utilization of water, rain water harvesting plant is being installed in the campus.



Rain water harvesting plant

Biodegradable waste management:

Biodegradable waste is being collected for the formation of compost. This is being used as manure for the college plants.



Paper waste management:

All the staff members of the college are committed to minimize the production of paper waste. Single side printed paper is used for internal communication. The paper waste is being collected and sold out for recycling.

E-Waste management:

E-waste is being collected separately. Presently it is not in a big amount. The policy for its management will be made in upcoming years.

Hazardous Chemical WasteManagement: Our labs do not use such chemicals that create health hazard. Even though if such chemicals used, are disposed safely after converting them into nonhazardous waste.

Plastic Waste management: The college staff and students are aware about the bad effects of plastic created on our environment. So many awareness programs are being organized in this regard. There is minimum generation of plastic waste in the campus.

Institutional Efforts taken towards Green /Renewable Energy Resources: We understand the advantages of green energy resources like solar energy. Its use to reduce the load on electrical energy was recommended by the previous year' audit report also.

Our Institute has taken one step towards it and in the Meeting of Janbhagidari Samiti held on 25.03.2021, a proposal on establishment of solar power plant has been approved. On 11.02.22 Chhattisgarh Renewable Energy Development Authority (CREDA) has approved the set up of solar power plant of 3.6 Kilo Watt which is going to be established and functioning in the upcoming days.

Summary

Environment Audit is one of the important tools to check the balance of natural resources and its judicious use. Environment auditing is the process of identifying and determining whether institutional practices are eco-friendly and sustainable. It is a process of regular identification, quantification, documenting, reporting and monitoring of environmentally important components in a specified area. Govt. College Abhanpur, Raipur has conducted an “Environment Audit” in the academic year 2020-2021. The main objective to carry out Environment audit is to check the Environment practices and to conduct a well-defined audit report to understand whether the College is on the track of sustainable development.

Findings:

From the Environment audit following are the important findings:

1. All the departments put their effort towards minimum generation of paper waste.
2. Biodegradable waste is collected to be utilized for compost formation.
3. Rain water is being taken in the rain water harvesting plant.
4. There is no use of hazardous chemicals by college laboratories.
5. Staff and students are aware about the bad effects of plastic bags and other single use plastic articles.
6. Most of the students use bicycles for commuting purpose which is a good practice and supports healthy environment.
7. Maximum college staff uses car pool system for commuting thus reducing carbon foot prints in the atmosphere.

8. The institution has taken step towards use of green energy in terms of initiating process for the establishment solar power plant.

Govt. Kavyopadhyay Hiralal College, Abhanpur, Raipur

Energy Audit Committee

SN	Name	Designation	Committee role
1.	Dr. Deepa Chaturvedi	Asst. Professor Dept. of Chemistry	Co-ordinator
2.	Mr. Praveen Yadav	Principal cum Director, C. I. T. Raipur (Engineer, Electronics and Telecommunication))	External Auditor
3.	Mr. Shekhar Kumar Sahu	Asst. Professor Dept. of Computer Science	Auditor
4.	Mr. Vinod Dhurve	Non teaching staff	Member

Energy Audit Certificate

This is to certify that Energy Audit for Govt. K. H. College Abhanpur, Raipur has been conducted in May-June 2022 for the purpose to assess the cost of energy, reliability and support of energy, energy conservation methods and finding the ways to reduce the cost of energy for the session April 2021 to March 2022.

Place: Govt. K. H.
College, Abhanpur,
Raipur

Date: 4.6.22


Dr. Deepa Chaturvedi
H.O.D. Chemistry
Govt. College Abhanpur
Raipur (C.G.)


Praveen Yadav
Principal & Director
Central Institute of Technology
NAYA RAIPUR (C.G.)


Mr. Shekhar Kumar Sahu

Auditor

As per energy conservation act 2001, Energy Audit can be defined as “the verification, monitoring and analysis of use of energy including submission of technical report containing recommendations for improving energy efficiency with cost benefit analysis and an action plan to reduce energy consumption”.

Rapidly increasing energy prices, pressures to decrease the emissions of greenhouse gases and need for the industry to move towards sustainable development, demand significant improvements in Energy and efficiency.

The primary objectives of energy audit are to identify and evaluate opportunities to reduce energy consumption per unit of product output and reduce operating costs through energy conservation and planning. Energy audit provides a standard for managing energy in the organization and also provides the basis for planning a more effective use of energy throughout the organization.

Govt. College Abhanpur, Raipur is situated on Abhanpur Rajim Road has 15.8 acre total campus area out of which 2184 sq. meter is the buildup area.

Phases of Energy Audit:

1. **Data collection:** Following steps were taken-
 - a. Team of audit committee went to the campus i. e. each department, library, labs and class rooms to get the correct number of electrical appliances being used.
 - b. Electricity bill of past two years collected.
 - c. Data about general information were collected by observation and interview

S.N.	Appliances	Number
1.	CFL Bulb	05
2.	LED lights	32
3.	Tube lights	175
4.	Fans	144
5.	Exhaust fan	05
6.	Computers	50
7.	Laptops	1
8.	Air-conditioner	3
9.	Electrical Appliances in the lab	110
10.	Photocopier Machine	1

11.	Printer	4
12.	LED Monitor for CCTV	1
13.	Power point Projector	5
14.	Smart board	2
15.	Refrigerator	03
16.	Induction plate	01

2. Data Analysis: Detailed analysis of data collection include-

- Calculation of energy consumption
- Understanding of tariff plan provided by Chhattisgarh Power Distribution Corporation Limited (CSPDCL)
- Analysis of latest electricity bill of the college

Energy Source: The source of energy in the institute is mainly electrical energy. Electricity is being supplied from Chhattisgarh State Power Distribution Company Limited (CSPDCL).

The secondary source of energy is thermal energy used only in Chemistry lab. For this purpose only one LPG cylinder is available in the Chemistry lab.

Energy Consumption in year 2019-20

SN	Month	Unit consumption	Cost@ Rs 7.25
1.	April	3138	26170
2.	May	2,524	18,299
3.	June	1,376	13,396
4.	July	1509	14,430
5.	August	1,465	14,041
6.	September	1,607	15,070
7.	October	2,495	21,508
8.	November	1,237	12,388
9.	December	871	9,734
10.	January	1,563	14,751
11.	February	894	6,481
12.	March	1,656	12,007

Energy Consumption in year 2020-21

SN	Month	Unit consumption	Cost@ Rs 7.25
1.	April	380	2,755
2.	May	653	4,734
3.	June	848	6,148
4.	July	461	3,342
5.	August	896	6,496
6.	September	1,618	11,731
7.	October	321	2,327
8.	November	835	6,054
9.	December	809	5,865
10.	January	729	5285
11.	February	1,149	8,330
12.	March	1405	10186

Energy Consumption in year 2021-22

SN	Month	Unit consumption	Cost@ Rs 7.25
1.	April	688	4988
2.	May	555	4023
3.	June	1366.0	9'903.50
4.	July	872	6,322
			Cost@ Rs 7.40
5.	August	1,702	12,594.80
6.	September	715	5291
7.	October	930	10682
8.	November	612	4528
9.	December	1020	7548
10.	January	1163	8606
11.	February	682	5046
12.	March	1409	10427

3. Institutional Efforts taken towards Green /Renewable Energy

Resources: We understand the advantages of green energy resources like solar energy. Its use to reduce the load on electrical energy was recommended by the previous year' audit report also.

Our Institute has taken one step towards it and in the Meeting of Janbhagidari Samiti held on 25.03.2021, a proposal on establishment

of solar power plant has been approved. On 11.02.22 Chhattisgarh Renewable Energy Development Authority (CREDA) has approved the set up of solar power plant of 3.6 Kilo Watt which is going to be established and functioning in the upcoming days.

4. **Recommendations:** On the basis of observations and data collection following steps for energy conservation are being recommended:
- a. Energy monitors in each class room, Corridors and floors.
 - b. Short term investment:
 - i. Replacement of all light devices from LED bubs.
 - ii. Replacement of LCD monitors from LED monitors.
 - iii. Use of Master switch outside the labs.
 - c. Substitution of electrical energy into solar energy (Long term investment).
 - d. Better operational practices for AC like proper insulation, switching off before leaving room.

Already existing power saving Measures:

1. Turn off electrical appliances when not in use.
2. Master switches are installed outside computer labs.
3. Replacement of CFL bulbs with LED devices.
4. Use computers and other electronic appliances in power saving mode.
5. Creating awareness in the students and staff towards conservation of power.
6. All the halls and class rooms are open and airy thus minimizing the dependency on electrical energy at day time.

Findings of Energy Audit:

- a. Monthly usage of electricity is not very high.
- b. Efforts towards establishment of renewable energy resources i.e. solar energy are being taken by the Institute.
- c. Adequate awareness about energy conservation method is there.
- d. Regular monitoring of all equipments and rectification of problem if any is done.
- e. The process of replacement of non energy efficient equipment with energy efficient equipment is being done.

