



2022

GREEN & ENVIRONMENT AUDIT REPORT

Guru Ghasidas Vishwavidyalaya, Bilaspur(C.G.)



December 2022

Prepared by:
Greenserve Energy Management Solutions
Vijay Nagar,
Durg (C.G.) - 491001



Acknowledgement

We are thankful to the Management and the Vice Chancellor of the Guru Ghasidas Vishwavidyalaya, Bilaspur for entrusting processes of Green & Environment auditing with us. We thank all the participants of the auditing team especially students, faculty and non-teaching staff who took pain along with us to gather data through survey. We also thank the office staff who helped us during the document verification.

Audit Team Members

1	Rahul Agrawal	Certified Energy Auditor
2	Jayendra Mohabe	Senior Energy Engineer
3	Bhumesh Jagnit	Energy Engineer

For Greenserve Energy Management Solutions,

Greenserve Energy
Management Solutions
Durg (C.G.)

Rahul Agrawal

Certified Energy Auditor (EA-20984)

Bureau of Energy Efficiency (MoP)



1. Executive Summary

The rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institute which will lead for sustainable development.

Guru Ghasidas Vishwavidyalaya Bilaspur, Chhattisgarh is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reverse the trends. Being a premier institution of higher learning, the university has initiated 'The Green Campus' program that actively promote the various projects for the environment protection and sustainability.

The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The methodology includes: preparation and filling up of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons, data analysis, measurements and recommendations. It works on the several facets of 'Green Campus' including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity. With this in mind, the specific objectives of the audit are to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the departments are in compliance with the applicable regulations, policies and standards. It can make a tremendous impact on student's health and learning University operational costs and the environment. The criteria, methods and recommendations used in the audit are based on the identified risks



2. Introduction

Green Audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Green Audit' aims to analyze environmental practices within and outside the University campus, which will have an impact on the eco-friendly ambience. It was initiated with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth by carrying out Green Audit.

Green audit is assigned to the criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India and it declares the institutions as Grade A, B or C according to the scores assigned during the accreditation.

2.1 About the University

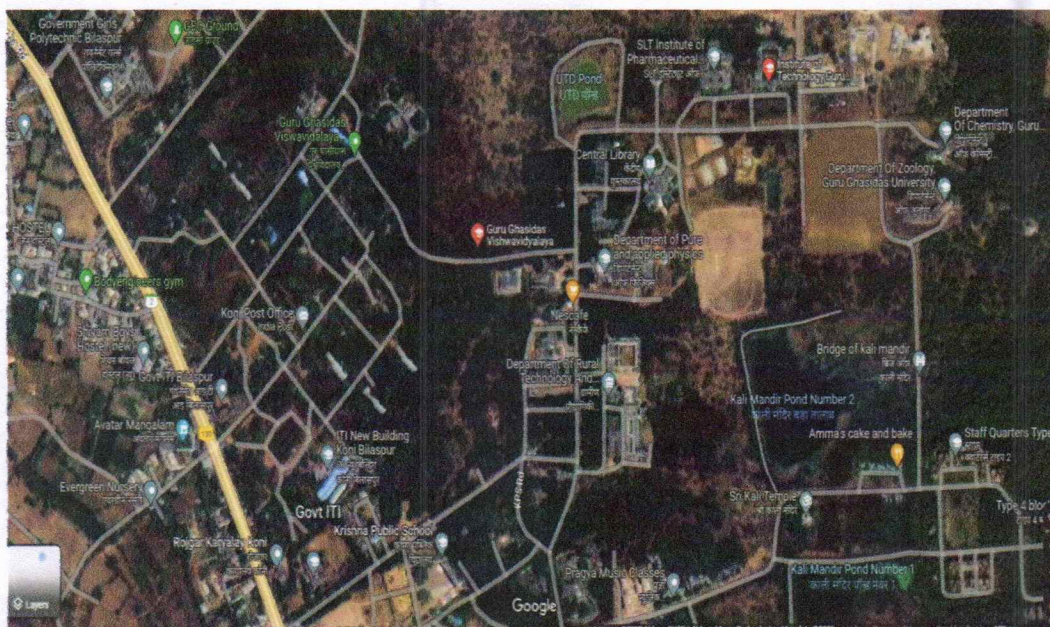
Guru Ghasidas Vishwavidyalaya (गुरु घासीदास विश्वविद्यालय), is a Central University of India, located in Bilaspur C.G. State, established under Central Universities Act 2009, No. 25 of 2009. Formerly called Guru Ghasidas University (GGU), established by an Act of the State Legislative Assembly, was formally inaugurated on June 16, 1983. GGU is an active member of the Association of Indian Universities and Association of Commonwealth Universities.

Situated in a socially and economically challenged area, the university is appropriately named to honour the great Satnami Saint Guru Ghasidas (born in the 17th century), who championed the cause of the downtrodden and waged a relentless struggle against all forms of social evils and injustice prevailing in the society. The University is a residential institution, having its jurisdiction spread over Bilaspur Revenue Division of the state of Chhattisgarh. It covers almost the entire spectrum of the higher education requirements of the country along with the local people. It has 32 (thirty two) University Teaching Department (UTDs) on its campus under 11 school of studies.



Location:

Guru Ghasidas Vishwavidyalaya, Bilaspur and the GPS Coordinates of the university is **22°07'45.7"N 82°08'09.9"E**.



Total Campus Area & University Building Spread Area

Campus area	2645673 Sq. m.
Total Campus Building Area	258132 Sq. m.
Total campus Smart building area	85084 Sq. m. (32.96% approx.)
Total area on campus covered in Forest vegetation	1954065 Sq. m. (74% approx.)
Total area on campus covered in Planted vegetation	291024 Sq.m. (11% approx.)
Total area on campus for water absorption besides Forest & Planted vegetation	408049 Sq. m. (15.4% approx)
Total population on the campus	10183
Percentage of university's budget for sustainability efforts	15%
Research publication on sustainability practices in university	264



3. Pre-Audit Stage

A pre-audit meeting provided an opportunity to reinforce the scope and objectives of the audit and discussions were held on the practicalities associated with the audit. This meeting is an important prerequisite for the green audit because it is the first opportunity to meet the audit team and deal with any concerns. The meeting was an opportunity to gather information that the audit team can study before arriving on the site. The audit protocol and audit plan were handed over at this meeting and discussed in advance of the audit itself. In the university pre-audit meeting was conducted successfully and necessary documents were collected directly from the University before the initiation of the audit processes. Actual planning of audit processes was discussed in the pre-audit meeting. Audit team was also selected in this meeting with the help of staff and the University management. The audit protocol and audit plan were handed over at this meeting and discussed in advance of the audit itself. The audit team worked together, under the leadership of the lead auditor, to ensure completion within the brief and scope of the audit.

3.1 Management's Commitment

The university administration has shown the commitment towards the green auditing during the pre-audit meeting. They were ready to encourage all green activities. It was decided to promote all activities that are environment friendly such as awareness programs on the environment, campus farming, planting more trees on the campus etc., after the green auditing. The university administration was willing to formulate policies based on green auditing report.

3.2 Scope and Goals of Green & Environment Auditing

A clean and healthy environment aids effective learning and provides a conducive learning environment. There are various efforts around the world to address environmental education issues. Green & Environment Audit is the most efficient and ecological way to manage environmental problems. It is a kind of professional care which is the responsibility of each individual who are the part of Economical, financial, social, environmental factor. It is necessary to conduct green audit in university campus because students become aware of the green audit, its advantages to save the planet and they become good citizen of our country. Thus, Green audit becomes necessary at the University level. A very simple indigenized system has been devised to monitor the environmental performance of Guru Ghasidas Vishwavidyalaya, Bilaspur. It comes with a series of questions to be answered on a regular basis. This innovative scheme is user friendly and totally voluntary. The aim of this is to help the institution to set environmental examples for the community, and to educate the young learners.



3.3 Benefits of the Green& Environment Auditing

- More efficient resource management
 - To provide basis for improved sustainability
 - To create a green campus
 - To enable waste management through reduction of waste generation, solid- waste and water recycling
 - To create plastic free campus and evolve health consciousness among the stakeholders
 - Recognize the cost saving methods through waste minimizing and pointing out the prevailing and forthcoming complications
 - Authenticate conformity with 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
 - Financial savings through a reduction in resource use
 - Development of ownership, personal and social responsibility for the university campus and its environment
 - Enhancement of University profile
 - Developing an environmental ethic and value systems in youngsters.
 - Green auditing should become a valuable tool in the management and monitoring of environmental and sustainable development programs of the university.
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3.4 Target Areas of Green and Environment Auditing

Green audit forms part of a resource management process. Although they are individual events, the real value of green audits is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time. Green campus concept mainly focuses on the efficient use of energy & water, minimize waste generation or pollution and also economic efficiency.

All these indicators are assessed in process of "Green and Environment Auditing of educational institute". Green campus focuses on the reduction of contribution to emissions, procures a cost effective and secure supply of energy, encourages and enhance energy use conservation, promotes personal action, reduce the institute's energy and water consumption, reduce wastes to landfill, and integrate environmental considerations into all contracts and services considered to have significant environmental impacts. Target areas included in this green auditing are water, energy, waste, green campus and carbon footprint.

3.5 Auditing for Water Management

Water is a natural resource; all living matters depend on water. While freely available in many natural environments, in human settlements potable (drinkable) water is less readily available. We need to use water wisely to ensure that drinkable water is available for all, now and in the future. A small drip from a leaky tap can waste more than 180 liters of water to a day; that is a lot of water to waste enough to flush the toilet eight times! 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. Water auditing is conducted for the evaluation of facilities of raw water intake and determining the facilities for water treatment and reuse. The concerned auditor investigates the relevant method that can be adopted and implemented to balance the demand and supply of water. It is therefore essential that any environmentally responsible institution examine its water use practices.

3.6 Auditing for Energy Management

Energy cannot be seen, but we know it is there because we can see its effects in the forms of heat, light and power. This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliances, and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. An old incandescent bulb uses approximately 60W to 100W while an energy efficient Light Emitting Diode (LED) uses only less than 10 W. Energy auditing deals with the conservation and methods to reduce its consumption related to environmental degradation. It is therefore essential that any environmentally responsible institution examine its energy use practices.



3.7 Auditing for Waste Management

Pollution from waste is aesthetically unpleasing and results in large amounts of litter in our communities which can cause health problems. Plastic bags and discarded ropes and strings can be very dangerous to birds and other animals.

This indicator addresses waste production and disposal, plastic waste, paper waste, food waste, and recycling. Solid waste can be divided into two categories: general waste and hazardous waste. General wastes include what is usually thrown away in homes and schools such as garbage, paper, tins and glass bottles. Hazardous waste is waste that is likely to be a threat to health or the environment like cleaning chemicals and petrol. Unscientific landfills may contain harmful contaminants that leach into soil and water supplies, and produce greenhouse gases contributing to global climate change. Furthermore, solid waste often includes wasted material resources that could otherwise be channelled into better service through recycling, repair, and reuse. Thus, the minimization of solid waste is essential to a sustainable university. The auditor diagnoses the prevailing waste disposal policies and suggests the best way to combat the problems. It is therefore essential that any environmentally responsible institution examine its waste processing practices.

3.8 Auditing for Green Campus Management

Unfortunately, biodiversity is facing serious threats from habitat loss, pollution, over consumption and invasive species. Species are disappearing at an alarming rate and each loss affects nature's delicate balance and our quality of life. Without this variability in the living world, ecological systems and functions would break down, with detrimental consequences for all forms of life, including human beings. Newly planted and existing trees decrease the amount of carbon dioxide in the atmosphere. Trees play an important ecological role within the urban environment, as well as support improved public health and provide aesthetic benefits to cities. In one year, a single mature tree will absorb up to 48 pounds of carbon dioxide from the atmosphere, and release it as oxygen. The amount of oxygen that a single tree produces is enough to provide one day's supply of oxygen for people. So, while you are busy studying and working on earning those good grades, all the trees on campus are also working hard to make the air cleaner for us. Trees on our campus impact our mental health as well; studies have shown that trees greatly reduce stress, which a huge deal is considering many students are under some amount of stress.

3.9 Auditing for Carbon Footprint

Commutation of stakeholders has an impact on the environment through the emission of greenhouse gases into the atmosphere consequent to burning of fossil fuels (such as petrol). The most common greenhouse gases are carbon dioxide, water vapour, methane, nitrous oxide and ozone. Of all the greenhouse gases, carbon dioxide is the most



prominent greenhouse gas, comprising 402 ppm of the Earth's atmosphere. The release of carbon dioxide gas into the Earth's atmosphere through human activities is commonly known as carbon emissions. An important aspect of doing an audit is to be able to measure your impact so that we can determine better ways to manage the impact. In addition to the water, waste, energy and biodiversity audits we can also determine what our carbon footprint is, based on the amount of carbon emissions created. One aspect is to consider the distance and method travelled between home and institute every day. It undertakes the measure of bulk of carbon dioxide equivalents exhaled by the organization through which the carbon accounting is done. It is necessary to know how much the organization is contributing towards sustainable development. It is therefore essential that any environmentally responsible institution examines its carbon footprint.

3.10 Methodology of Green and Environment Auditing

The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The criteria, methods and recommendations used in the audit were based on the identified risks. The methodology includes: preparation and filling up of questionnaire, physical inspection of the campus, observation and review of the document, interviewing responsible persons and data analysis, measurements and recommendations. The methodology adopted for this audit was a three-step process comprising of:

3.10.1. Data Collection – In preliminary data collection phase, exhaustive data collection was performed using different tools such as observation, survey communicating with responsible persons and measurements.

Following steps were taken for data collection:

- The team went to each department, centres, Library, canteen etc.
- Data about the general information was collected by observation and interview.
- The power consumption of appliances was recorded by taking an average value in some cases.

3.10.2. Data Analysis - Detailed analysis of data collected include: calculation of energy consumption, analysis of latest electricity bill of the campus, understanding the tariff plan provided by the Chhattisgarh State Electricity Board (CSEB). Data related to water usages were also analysed using appropriate methodology.

3.10.3. Recommendation – On the basis of results of data analysis and observations, some steps for reducing power and water consumption were recommended. Proper treatments for waste were also suggested. Uses of fossil fuels have to be reduced for the sake of community health. The above target areas particular to the university was evaluated through questionnaire circulated among the students for data collection. Five categories of questionnaires were distributed.



4. Post-Audit Stage

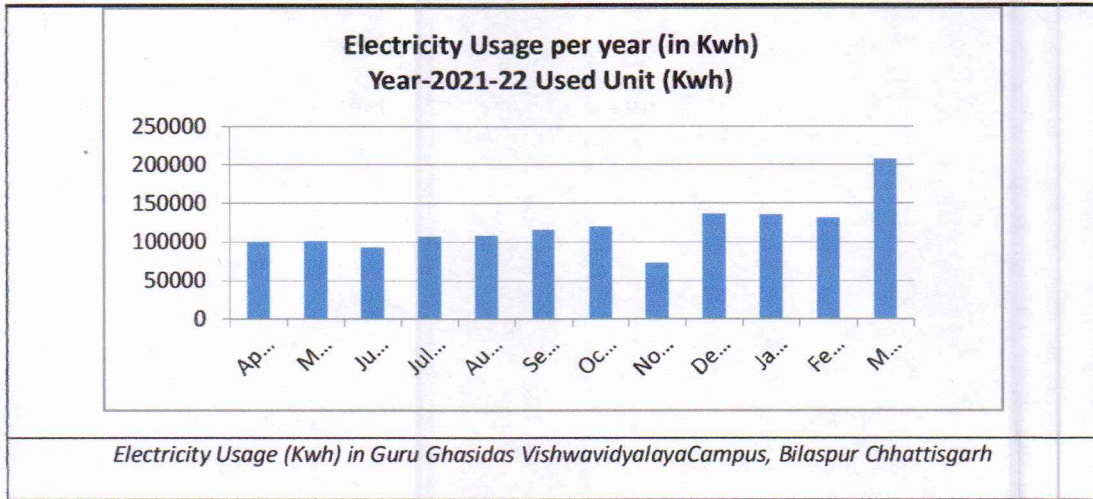
4.1 Energy Usage:

DETAILS OF ENERGY CONSUMPTION (building wise):

No.	Building Name	Consumption (kWh)
1	Chanayak Prashasanik Bhawan (Administrative building)	540
2	Rajat Jayanti Sabhagar (Auditorium Building)	272
3	Annapurna Cafe (Cafeteria Building)	134
4	Satyendra Nath Bose Bhawan (Dept. of Pure & Applied Physics Building)	827
5	GGV Swabhimani Thali Building	11
6	Swami -Vivekanand Boys Hostel	154
7	Raj Mohini Devi Kanya chhatrawas (Girls Hostel)	213
8	Bilasa Devi Balika Chhatrawas (New Girls Hostel - B)	133
9	Minimata Balika Chhatrawas (New Girls Hostel - A)	133
10	Samrat Samudragupt Anterrastriya Atithi Grih (International Guest House)	702
11	Jawahar Sadan- Guest House	230
12	Biotechnology Building	563
13	Department of Rural Technology & Social Development Building	176
14	Department of Forestry Wildlife & Environmental Science (Old building)	145
15	Department of Forestry Wildlife & Environmental Science (New Building)	174
16	UTD Building	411
17	Nalanda Kendriya Granthalay (Central Library Building)	218
18	OLD IT Building (First floor Central Library building)	355
19	Sahid Veer Narayan Singh Balak Chhatrawas (Boys Hostel - I)	219
20	Dr. B. R. Ambedkar Balak Chhatrawas (Boys Hostel - II)	157
21	New IT Building	535
22	Engineering & Technology Workshop	88
23	Pt. Madan Mohan Malviya Shiksha Vibhag Bhawan (Department of Education)	176
24	Dr. Shyama Prasad Mukharji Kala and Samajik Vigyan Bhawan (Department of Arts & Social science)	271
25	Scholar o Studies of Commerce & Management	144
26	School of Law Building	105
27	Aryabhata Bhawan (CSIT Building)	147
28	UGC Department Building	209
29	Nagarjuna Bhawan (Department of Chemistry)	219
30	Zoology Building	183
31	Pharmacy building	403
Total Consumption (kWh)		8248



4.1.1 Electricity Usage per Year (in Kilowatt hour)



Total Electricity uses in GGV Bilaspur campus year 2021-22

Electricity Usage per year (in Kwh)Year-2021-22	
Month	Used Unit (Kwh)
Apr-21	99989
May-21	101369
Jun-21	93449
Jul-21	106652
Aug-21	108899
Sep-21	116105
Oct-21	119920
Nov-21	72406
Dec-21	135968
Jan-22	135326
Feb-22	131253
Mar-22	207668
Total	1429004

Ratio of renewable energy production divided by total energy usage per year

S.No.	Conventional energy usage (Kwh)	Renueable energy production(Kwh)	Ratio
1	1429004	3010399.2	2.1



Description:

The total electricity usage of Guru Ghasidas Vishwavidyalaya Campus during 2021-2022 was 1429004 Kwh. The University utilizes the demanded electricity on research, lighting, cooling, laboratory appliances, and digital appliances. Recent year the university installed a renewable energy (solar panels) with annual production of 3010399.2 Kwh to meet increasing demand of energy for sustainable development.



22°07'36.2"N 82°08'21.6"E

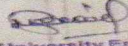
Solar Roof Top Panels in Guru Ghasidas Vishwavidyalaya Buildings



S.No- 4

Total Electricity uses in GGV Bilaspur campus year 2021-22

Electricity Usase per year (in Kwh)Year-2021-22	
Month	Used Unit (Kwh)
Apr-21	99989
May-21	101369
Jun-21	93449
Jul-21	106652
Aug-21	108899
Sep-21	116105
Oct-21	119920
Nov-21	72406
Dec-21	135968
Jan-22	135326
Feb-22	131253
Mar-22	207668
Total	1429004

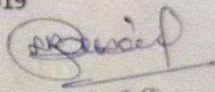

 University Engineer
 Guru Ghasidas Vishwavidyalaya
 Bilaspur (C.G.)

S.No-3

Renewable energy sources at GGV Bilaspur campus

S.No	Items	Location	Capacity	Nos	Total watt	Production Capacity (Kwh per year)
1	Solar street light	Various Department, Parking, Street	12W	70	840 W	3679.2
2	Roof top Solar Power Project 2MW (DC)	Various Roof of the at GGV Buildings	2 MW (DC) & 1.79 MW (AC) Approx	2MW (DC)	2 MW (DC), 1.79 MW (AC) Approx	1.6MW (DC) / 1.43 MW (AC)

Note:- 2MW roof top on-grid solar power plant (1.79MW AC)
 Order no- 227/Engg/CPSU/GGV/2019 Dated 06.12.2019


 University Engineer
 Guru Ghasidas Vishwavidyalaya
 Bilaspur (C.G.)



4.2 Water Usage:

4.2.1 Water Storage Tank Capacity in Litre

Sl No.	Location	No.of Tank	Tank Capacity (Ltr)	Storage Capacity (Ltr)	Total Storage (Ltr)
1	University Building	3	150000	450000	646000
		89	2000	178000	
		13	1000	13000	
		1	5000	5000	
Total Water Storage					646000

4.2.2 Water Supply in Campus (in Litre/ Day)

S. No.	Source Of Water	kW Rating	Location	Under Control	Rated Flow (LPM)	Pump Running Minute /Day	Supply Ltr/Day	% age of Supply Water
1	Submersible Pump (5 HP x 30 Nos.)	3.7	University Buildings in campus	University premises	15000 (approx)	70	1000000 (approx)	62%
Total Water Supply							620000	



4.2.3 University building water Consumption (Litre / Day)

Sl.No.	Parameter	Information
1	No. of Well	NIL
2	No. of Motor Pump used	30 Nos.
3	Horse power - motor	2HP - 02 Nos., 3HP – 06 Nos., 5HP – 19 Nos., 7.5 HP – 03 Nos.
4	Capacity of Over Head Tank	3,80,000 L
WATER USED IN DIFFERENT SECTION OF THE CAMPUS		
	SECTIONS	WATER USE (L/DAY)
1	Hostel	148500
2	Residential Quarters	169200
3	Administrative Block	15000
4	Construction Work	200000
5	Canteen	10000
6	Urinals and Toilet	75000
7	Departments	80000
8	Gardens	25000
9	Laboratories	12000
10	Drinking	26000
11	Leakages	12000
12	Main purpose of water use in campus	Drinking, Cooking, Laboratories, Gardens, Toilets, Construction etc.
13	Numbers of water tap excluding household and residential quarters	1000 nos.
14	Water Cooler and Drinking water filtration facilities	55
15	Number of urinals and toilets (excluding	115



	house-hold and residential quarters)	
16	Number of Waterless / Bio toilets	NIL
17	Any water wastage / Why?	Yes, Leakage from pipe and tank, leaving of taps open at times
18	Waste water sources	Leakage from pipe and tank, overflow of tanks from residential quarters, toilets, laboratories, hostels
19	Uses of waste water	Nil
20	The fate of waste water from Labs	Discharge into soak pit in case of contamination and natural discharge
21	Any waste water treatment for lab water	No
22	Whether any green chemistry method practised in Labs	No
23	Rain Water Harvesting	Rain water harvesting is maintained by the water body within the premises which also help in maintaining the ground water level and there is no reusable rainwater which is harvested. Lake serves the main purpose of rain water harvesting

4.2.4 Existing water management methods installed in the campus

Sl No.	Source of ground recharger	Location
1	Rain water harvesting	In all buildings (New + Old) in campus
2	Rain Water of forest cover area	Three ponds in campus & Three annicuts

As Guru Ghasidas University is located in the area which has 74% forest cover due to which rain water goes to natural ponds and is leached to water table. All buildings of the



University have a separate sewerage system. Rain water is collected from the roofs of the buildings and then discharged into the underground tanks.

4.2.5 Water Efficient Appliances Usage (e.g. hand washing taps, toilet flush, etc.)



Water Efficient Appliances Usage in Guru Ghasidas Vishwavidyalaya

22°07'35.8"N 82°08'21.6"E

Description:

Guru Ghasidas Vishwavidyalaya has adopted several efficient water conservation measures which includes, toilets (automatic control of urinal flushing), low flush WC's and low flow taps and automatic taps.

Appliance	Total Number	Total number water Efficient appliances	Percentage
Toilet	900	720	80
Low flow taps	650	100	100
Float valve	450	450	100
		Average Percentage	93



4.2.6 Consumption of treated water



22°07'27.0"N 82°08'21.6"E

Description:

Treated drinking water facilities provided by university to students, faculties and staff. Guru Ghasidas Central University is covered with 74% natural forest and constructed (building area) is too less approximately 11%, therefore water quality of university is very good.

4.3 Waste measure and its disposal

4.3.1 MONTHLY PAPER USAGE DETAILS:

Sl No.	Details of Paper		New Paper	Waste Paper
	Paper	Unit	A4 size	Waste Paper
1	Paper Packet (A4 Size)	No.	3000	90
2	Weight Per Packet (Kg)	Kg / Packet	2.20	2.20
	Total Weight	Kg	6600	198



4.3.2 Recycling Program for University Waste



Descriptions

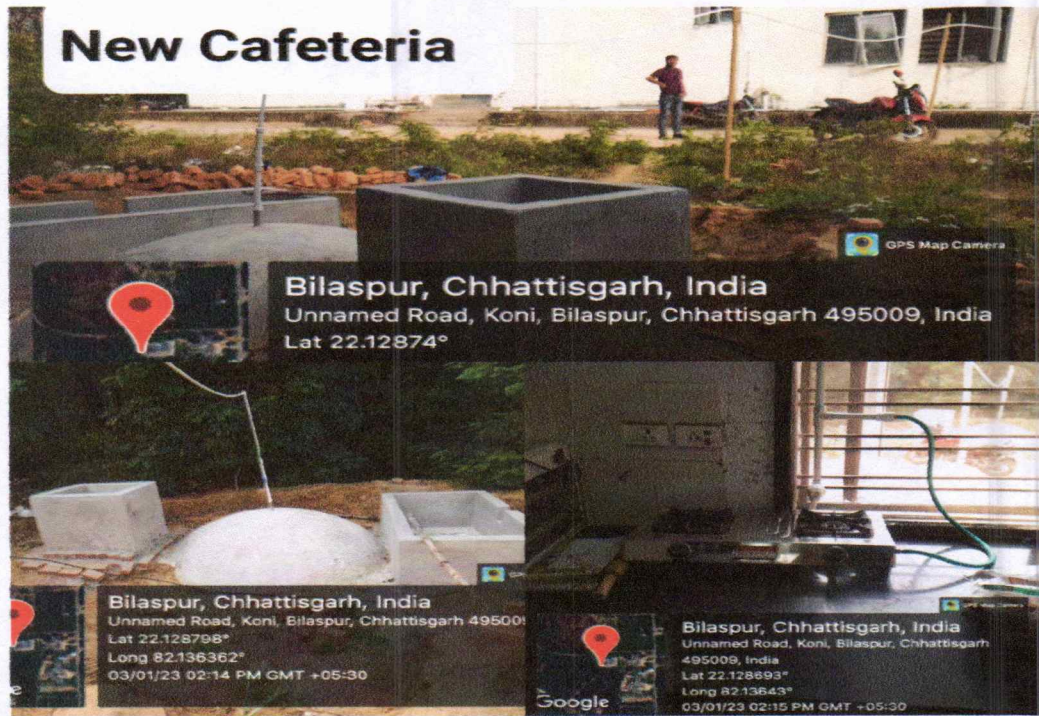
The university has developed a well established mechanism for the disposal of waste on the campus. The solid waste disposal mechanism has three phases

- (i) Waste collection
- (ii) Waste segregation
- (iii) Final disposal/transformation into manure (manure /biogas)

The university has placed blue & green dustbins in several common areas across the campus. The waste collected from academic, administrative and residential area of the campus is collected and segregated into degradable & non-degradable waste.



Three Bio gas plants have been setup in the university to produce bio-gas from food waste, decomposable organic material and kitchen waste. The gas produced is used in the kitchens of the university Cafeteria, Boys Hostel and Girls hostel respectively. The digested slurry from the bio-gas unit is used as organic manure in the garden.



BIOGAS PLANT IN CAMPUS



BIOGAS PLANT IN CAMPUS

The remaining bio-degradable waste collected from the campus is used to prepare organic manure, which is utilised in the university nursery for seedlings production etc. and also is sold by the department.

4.3.3 Program to Reduce the Use of Paper and Plastic on Campus

<p>1. Single use plastic banned in the campus 22°07'30.0"N 82°08'04.3"E</p>	<p>2. No to plastic posters 22°07'34.1"N 82°08'13.2"E</p>
<p>Program to Reduce the Use of Paper and Plastic in Campus</p>	



Conduction of Cleanliness drive and campaign by Guru Ghasidas Central University students on 12/02/2022.



Cleanliness awareness campaign 'Say no to plastic' awareness program by Guru Ghasidas Central University on 27th Feb 2022(Sunday), telecasted in local news channel "News 36"

4.4.4 Existing waste management methods practiced

- Cleaning the campus on daily basis.
- Waste bin's placed in corridors, office and staff rooms.
- Segregation of waste into degradable and non-degradable by the cleaning staff.
- Organic waste used in biogas plant and compost
- Bio-degradable waste collected from the campus is used to prepare organic manure.
- Inorganic waste is collected and put in a trench from where it is transported to a location identified by Bilaspur Municipal Corporation for disposal.
- In the University girls hostel sanitary pads are disposed by the incineration machine.



- The liquid wastes are disposed off through septic tank / soak pits associated with the buildings / STPs.
- Recycled water flowing out of these STP's are presently delivered on the open land for absorption, further planned for use in gardens etc.
- Campaigns for reduce, reuse and recycle.
- Special arrangement for exit of waste water from chemical lab.
- E-waste disposed as per university e-waste disposal policy



21/10/2021, 12:21 GRIHA registration cum rating details for the Institutional Campus of Guru Ghasidas Vishwavidyalaya - vggvtsop@gmail.co...

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M
Gmail

🔍 Search mail

Compose

Inbox 627

Starred

Snoozed

Sent

Drafts 101

More

Meet

New meeting

Join a meeting

Hangouts

U University Engr +

No Hangouts contacts

GRIHA registration cum rating details for Vishwavidyalaya Inbox

Kamal Kishor <kamal.kishor@grihaindia.org>
to Ankit, me, rkoutta, standardinfotechbilaspur

Dear Sir/Madam,

Greetings from GRIHA Council!

We have received your online registration form for GRIHA for Instit

You are just one step away from registration.

The total registration cum rating fee for the project is INR 426485 / cheque/DD in favour of GRIHA Council or through NEFT/RTGS. PI

This is non-refundable one-time fee and needs to be paid

Registration cum rating fee structure (excluding taxes) is as follows:

Size of the project (total built up area)
≤ 5,000 m ²
> 5,000 m ²

Green Building Implementation -Copy of the Griha Registration



Description:

- Green Building Implementation GRIHA Registration cum Rating for Institutional campus of Guru Ghasidas University – also attached.

The basic features of GRIHA

The system has been developed to help 'design and evaluate' new buildings (buildings that are still at the inception stages). A building is assessed based on its predicted performance over its entire life cycle – inception through operation. The stages of the life cycle that have been identified for evaluation are:

Pre-construction stage: (intra- and inter-site issues like proximity to public transport, type of soil, kind of land, where the property is located, the flora and fauna on the land before construction activity starts, the natural landscape and land features).

- Building planning and construction stages: (issues of resource conservation and reduction in resource demand, resource utilization efficiency, resource recovery and reuse, and provisions for occupant health and well-being). The prime resources that are considered in this section are land, water, energy, air, and green cover.
- Building operation and maintenance stage: (issues of operation and maintenance of building systems and processes, monitoring and recording of energy consumption, and occupant health and well-being, and also issues that affect the global and local environment).

The benefits

- On a broader scale, this system, along with the activities and processes that lead up to it, will benefit the community at large with the improvement in the environment by reducing GHG (greenhouse gas) emissions, reducing energy consumption and the stress on natural resources.


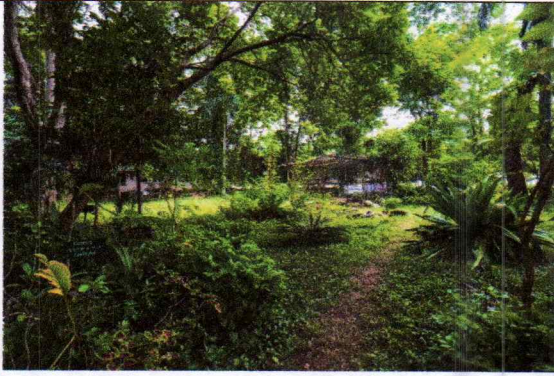


Some of the benefits of a green design to a building owner, user, and the society as a whole are as follows:

- Reduced energy consumption without sacrificing the comfort levels
- Reduced destruction of natural areas, habitats, and biodiversity, and reduced soil loss from erosion etc.
- Reduced air and water pollution (with direct health benefits)
- Reduced water consumption
- Limited waste generation due to recycling and reuse
- Reduced pollution loads
- Increased user productivity
- Enhanced image and marketability



4.6 Biodiversity in campus

Conservation: plant, animal, and wildlife, genetic resources for food and agriculture secured in either medium or long-term conservation facilities

	
22°07'33.4"N 82°08'18.3"E	22°07'35.4"N 82°08'15.8"E
Glass House	Forestry Nursery
	
22°07'31.0"N 82°08'31.9"E	22°07'34.4"N 82°08'36.3"E
Lac Cultivation Unit	Biodiversity Zone
Medium or long-term conservation facilities at Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh	

Description:

- Glass House for plant propagation
- Forestry Nursery
- Lac Cultivation Unit
- Biodiversity Zone



Biodiversity	No. of Species
Total tree species	: 61
Number of birds	: 144
Migratory birds species	: 64
Snakes	: 17
Lizards	: 03
Amphibians species	: More than 10
Mammals	: 10 (Golden jackal, Wild boar, Indian fox, Asian palm civet, Jungle cat, Indian hare, Indian grey mongoose, Grey langur, Indian palm squirrel and Fruit fox)
Butterfly, dragonfly and damselfly:	: More than 30 species





4.7 Carbon Footprint

4.7.1 Sustainability Practices



Examples of Events Related to Sustainability (Guru Ghasidas Vishwavidyalaya)



Examples of Events Related to Sustainability (Guru Ghasidas Vishwavidyalaya)



4.7.2 Transportation

<p>22°07'40.0"N 82°08'16.6"E</p>	<p>22°07'30.1"N 82°08'04.4"E</p>
<p><i>Shuttle Services (Guru Ghasidas Vishwavidyalaya)</i></p>	
<p><i>Bus stop for Shuttle Services 22°07'41.5"N 82°08'17.2"E</i></p>	<p><i>Free Bicycle services</i></p>
<p>22°07'30.1"N 82°08'04.4"E</p>	<p>22°07'51.3"N 82°08'17.1"E</p>
<p><i>Shuttle car of Guru Ghasidas Vishwavidyalaya</i></p>	<p><i>E-Rickshaw for transport inside the Guru Ghasidas Vishwavidyalaya</i></p>

**Description:**

No.	Vehicle	Total Number
1	Car managed by the university	15
2	Cars entering the university	425
3	Motor cycles entering the university	528
	Total	968

The total number of vehicles (cars and motorcycles) = $968 / 10184$ (population) = 0.095 divided by total campus' population

Total Carbon foot print (CO₂ emission in the last 12 months = 1533.69 metric tons

Total carbon foot print divided by total population = 0.15 metric ton

5. Conclusion and Recommendations

Green and Environment Audit is the most efficient way to identify the strength and weakness of environmental sustainable practices and to find a way to solve problem. Green Audit is one kind of professional approach towards a responsible way in utilizing economic, financial, social and environmental resources. Green audits can "add value" to the management approaches being taken by the university and is a way of identifying, evaluating and managing environmental risks (known and unknown). There is scope for further improvement, particularly in relation to waste, energy and water management. The university in recent years considers the environmental impacts of most of its actions and makes a concerted effort to act in an environmentally responsible manner. Even though the university does perform fairly well, the recommendations in this report highlight many ways in which the university can work to improve its actions and become a more sustainable institution.

5.1 Major Audit Observations

- i. More notice boards and signs may be placed to sensitize students on over exploitation of natural resources.
- ii. Programs on green initiatives have to be increased. Campus is declared plastic free, stringent actions are being taken to maintain this.
- iii. Existing Rain water harvesting systems, solar power generation, environmental education programs are adequate. However, these may be strengthened.



-
- iv. Display boards against the misuse of water use are adequate. However, these may be strengthened.
 - v. Display boards for awareness in relation to energy conservation are adequate. However, these may be strengthened.
 - vi. Energy efficient fans may be placed in place of non- energy efficient fans in a phase out manner.
 - vii. Solid waste management systems established can be improved by reusing materials that would otherwise be discarded, by recycling materials and by using recycled materials.
 - viii. Display boards to all plants & trees identified, should be increased.
-



5.2 Recommendations

5.2.1 Water

- i. Replace non-sensor type taps with sensitive taps if possible.
- ii. Awareness programs on water conservation to be conducted.
- iii. Install display boards to control over exploitation of water.

5.2.2 Environment

Arrange training programmes on environmental management system and nature conservation. .

5.2.3 Energy

- i. Establish a purchase policy that is energy saving and eco-friendly.
- ii. Replace incandescent and CFL lamps with LED lights.
- iii. Conduct more seminars, workshops and exhibitions on environmental education.
- iv. Establish more water, energy and waste management systems.
- v. Increase the number of display boards on environmental awareness such as – save water, save electricity, no wastage of food/water, no smoking, switch off light and fan after use, plastic free campus etc.
- vi. Replace old fans with energy efficient fans.
- vii. Replace Window AC with Split AC

5.2.4 Waste

- i. Conduct exhibition of recyclable waste products.
- ii. Conduct more seminars and group discussions on environmental education.
- iii. Replace non-sensor type taps with sensitive taps if possible.
- iv. Practice of waste segregation to be initiated.
- v. Avoid plastic/thermocool plates and cups in the university level or department level functions.
- vi. Establish an E-waste collection center in campus.



5.2.5 Green Campus

- i. All trees in the campus should be named scientifically.
- ii. Create more space for planting.
- iii. Grow potted plants at both verandah and class rooms.
- iv. Create automatic drip irrigation system during summer holidays.
- v. Not just celebrating environment day but making it a daily habit.
- vi. Beautify the university buildings with more indoor plants.
- vii. Conducting competitions among departments for making students more interested in making the campus green.

5.2.6 Carbon footprint

- i. Establish a system of car pooling among the staff to reduce the number of four wheelers coming to the University.
- ii. Encourage students and staff to use cycles.

5.2.7 Commitments after Green and Environment Auditing

In the light of green and environment audit the university should, adopt some additions in the vision and mission statements promoting compliance with environmental laws and regulations for sustainable existence of the university.




CERTIFICATION

This is to certify that Green & Environment audit for the year 2021- 2022 has been conducted for Guru Ghasidas Vishwavidyalaya Bilaspur for maintenance of sustainable and healthy environment for education in the campus. It is also certified that: -

- i. The data collection has been carried out diligently and truthfully.
- ii. All data monitoring devices are in good working condition and have been calibrated or certified by approved agencies authorized and no tampering of such device has occurred.
- iii. All reasonable professional skill, care and diligence had been taken in preparing the Green & Environment Audit Report and the contents thereof are a true representation of the facts.
- iv. Adequate training provided to personnel involved in daily operation after implementation of recommendation.

Signature:

Name of the Certified Energy Auditor:
Certification Detail:


22/12/2022
Mr. Rahul Agrawal
EA-20984
