

**BEST
PRACTICE
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Title of the Practice: Green and Environmentally Sustainable Practices

Towards sustainable Renewable Energy based campus

Water Conservation Practices (Rain Water Harvesting System and Water Storage Tanks-Ponds)

Plantation Drives

Net Zero carbon foot print campus

Nature Conservation

Objectives of Practice

- Create renewable energy-based electricity generation to meet out energy demand of the campus
- Utilize every drop of rain water through water harvesting structures in all buildings and water bodies to recharge and improve the groundwater level.
- Special plantation efforts to increase the green cover and biodiversity to create oxy-zone area and protect rare and endangered species.
- To sustain efforts for Net Zero carbon foot print campus

The context

GGV is a lush green campus having 74% forest cover including 11% through plantation. This has been made possible by adopting and inculcating the nature conservation practices among the learners. Students are encouraged and involved in these activities through awareness/extension programs on environmental protection/conservation practices such as water conservation, energy conservation, flora and fauna conservation. This is done through activities such as nature trails, plantation drives, bird watching, butterfly counts, and wild animal rescue etc.

With regard to preservation of rare and endangered species as well as developing innovative technologies, massive plantation drives are carried out to plant indigenous, rare and endangered species, bamboo plantation (five acres) miyawaki forest (2 acres), mango orchards (1 acre), rare endangered species plantation (17 acres). Students' involvement is ensured by adopting one student-one plant scheme under which intense road side plantation, plantation around water bodies, near academic buildings, in botanical garden and herbal garden has been conducted. This enhanced the richness of

biodiversity in the campus. Another important measure in this direction is notifying sensitive areas as restricted vehicle zone providing a safe habitat for various wild species.

The context of plantation activities includes the upliftment of the local environment by introducing more green cover to the area which can help in maintaining ecosystem services like water conservation, air regulation, pollution control as well as habitat availability to various species. Various resources will also be obtained in future through these plantation units for income generation and to make students self-employed.

Water conservation efforts have been carried out by rain harvesting on roof and on ground as well as recycling of used water. Three natural water bodies existing on the campus have been converted into water storage ponds on the natural inlet location of the University. Rainwater harvesting systems have been implemented on almost all possible buildings.

The solar panel has been installed to reduce pressure on coal-based power generating systems and protecting environment for future generations. Estimated produced energy is surplus in the credit of the university and may be used as an income generating system. Solar panels have been installed on the rooftop of university buildings on campus.

In our efforts of introducing green practices, the use of e-vehicles and bicycles to reduce carbon emissions has been promoted among the students, research scholars, university staff, and faculty within the campus. As a result 1000+ bicycles and e-rickshaws are operating routinely in the campus. University also organizes Conferences, Seminars, and Workshops to sensitize society and bring awareness on climate change, environment, and sustainability. Roadside pedestrian-friendly pathways provide pedestrians with a safe walk-through on the campus.

University has put a ban on the utilization of single-use plastic on campus. Students are discouraged to use plastic on campus and are sensitized to make the campus plastic free. Slogans and posters are put on the walls of common places like canteens, play areas, etc., to educate students about the dangers of using plastic.

The Practice

Solar Panel: Guru Ghasidas Vishwavidyalaya took initiative to cut down the conventional energy use on campus. For this purpose, the university has installed 2 MW rooftop solar power plant to harness solar energy. The university is also promoting the use of energy-efficient appliances on the university campus. More than 86% of the university's appliances are energy efficient. The total electricity usage of Guru Ghasidas Vishwavidyalaya Campus during 2021-2022 was 1429004 Kwh. The University utilizes the demanded electricity for research, lighting, cooling, laboratory appliances, and other digital appliances. This is easily met out by the renewable energy generated through solar plant. We aim to attain net Zero electricity usage through conventional sources at the earliest. In addition energy produced from three bio-gas plants installed and operated on the campus using generated waste also helps in enhancing green coverage and green practices.

Rainwater Harvesting System: University has a built up area of 258132 square meters. All the fifty two buildings belonging to academic departments and administrative/support system have rain water harvesting systems as per the standard procedures. More than two hundred twenty-five staff quarters are also discharge their water through connected discharge line into the water bodies. As per the official meteorology data, considering the average rainfall of Bilaspur 1292 mm, the total water 309758.40 cubic meters is charged in the ground through the rain water harvesting efforts. In addition, 655.78 acres of the campus land has topology in such a manner that the three major water bodies/ponds collects rain water from catchment area of approximately 20 sq. km. The water bodies are inter-connected and supported by anicuts and at appropriate places for the storage of rain water.

Plantation Drive: The plantation activities are planned in a systematic manner through a number of steps, including selection of sites with better soil and selecting the right species for each area. Plantation areas are appropriately fenced for protection measures and pits of suitable depth are dig to support plants. Fruiting species like Mango, Jamun, Imli, Amla, Badam, Jack Fruit etc. are planted and the soil is mixed with organic manures. In order to achieve better outcomes, regular irrigation procedures are carried out. Similar planting practices have been performed in the bamboo plantation unit of campus to introduce a variety of bamboo species for diversity enhancement on campus. Plantations

have also been performed under extension activities by students on the university campus. About 15000+ plants have been planted in recent years throughout the university campus. The university has 291024 m² (11%) area under plantation of various species such as Peltophorum, Eucalyptus, Mango, Syzygium, Ficus, Pongamia, Cassia, Acacia, Bauhinia, Bamboo, Albizia, Embelica, Anthocephalus, *Mimosa Terminalia*, *Azadirachta*, etc. established as Miyawaki and miscellaneous forests.

Nature Conservation: University Campus is located in suburban area of Bilaspur City, Chhattisgarh, India having lush green forest cover with more than 74 % (1954065.09 m²) forest area of its total terrestrial land. The campus has a natural and man-made forest with a wide range of floral and faunal diversity. Due to various sustainability practices adopted by the university the campus of Guru Ghasidas Vishwavidyalaya has been awarded as the 503th World's Most Sustainable University and 17th among Indian Universities in 2022 UI Green metric World University Rankings. A total of 1050 universities from 85 countries participated in this event.

Evidence of Success

- On the rooftops of all the buildings, a power plant of 2 MW has been installed.
- In the years 2021 and 2022, Guru Ghasidas Vishwavidyalaya has performed various plantation activities which include the development of Fruit orchard, a Bamboo plantation unit and other plantations throughout the university campus. The primary objective of these plantations is to increase the tree biodiversity and green cover of the area for creating a beautiful ambiance and a better environment.

Supporting documents:

Certificates of the awards received from recognized body



Geo-tag photographs of the facility

Green & Environmentally Sustainable Campus Initiatives



Solar Energy

