POST GRADUATE GOVERNMENT COLLEGE FOR GIRLS
SECTOR-11, CHANDIGARH
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Policy Document on Environment and Energy Usage

Policy Objectives

- To highlight best organic waste management strategies to achieve carbon foot print benefits.
- To explore possibilities and options for appropriate and suitable water conservation activities like on-site recycle and rain water harvesting, which play a fundamental role in sustainable development.
- To make the campus Smoke-free and Tobacco-free.
- To use LED/CFC and other energy saving devices on the campus to conserve electricity and mitigate carbon footprints.
- To mitigate single-use plastic, the dry component of the Municipal Solid waste.
- To appraise girl students about reducing the carbon footprints to achieve 'Zero Waste Campus'.

Policy

- To highlight Solid Waste management strategies, the college has Windrow composting plant where the adept schemes for successful co-composting of food, fruit and green waste is done with a mechanism to mitigate carbon leakage.
- To provide sustainable micro-climate, the college has adopted carbon footprint strategies like:
  - The building has installed 495 kWp Solar Photovoltaic Grid System for in-house green energy generation which is catering to the lighting of conventional electricity load.
  - Under the process of retro-fitting, LED lights are installed in the building to reduce energy consumption and it has been observed that the energy consumption has reduced in comparison to the earlier years.
  - The college has integrated students in "Students Light Patrol" in every Department to check empty classrooms, laboratories and other spaces for energy conservation and its sustainable use.
  - The college has a sprawling campus of about 35 acres with open green area of 56.84% and total green area of 60.34% due to the Plantation drives organized by the college on regular basis,which prevents micro-climatic global warming, hence improving resilience building to achieve the decarbonization target.

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- To create awareness among the students, the college has conducted Survey vide **"ENERGY SAVING AWARENESS QUESTIONNAIRE**". Such surveys and interactions are part of the college policy and help in energy sustainability and mitigation of carbon footprints.
- The college organises a "Cleanathon- A Sanitation and Fumigation Drive", on regular basis since June 2020 to create infection less micro-environment.
- The college has organized "Colloquium-Academic interactions", with series of lectures on Climate Change and Carbon mitigation strategies with objectives to provide a friendly interface that allow students and staff to have better understanding of the challenges arising from rapid climate change and to enhance sustainability and students wellbeing.
- The college has underground Rain Water Harvesting unit, Tertiary water supply, and Sprinkler system installed for efficient use of water, for all floriculture and landscaping operations ensuring efficient use of water.
- The college has four Vermicomposting pits(10x3x2 feet) with red earthworms (*Eisenia fetida*) for optimum use of college leaf litter along with farm yard manure (FYM).

Policy Implementation

To achieve the stated objectives, the college has implemented its Environment and Energy use policy in the following areas:

(i)Solid and liquid waste Management:

The college highlights the use of adept schemes for successful co-composting of food, fruit and green waste, with a mechanism to mitigate carbon leakage. The present model has devised two strategies (i) Single stage windrow composting (SSC) (ii) Two stage windrow composting (TSC),to highlight best organic waste management strategies to achieve co-composting of food, fruit and green waste using aerobic windrow composting to reduce their volume and mass, and achieve carbon foot print benefits.

(a)Single Stage Composting (SSC)

The energy efficiency initiatives mitigate the carbon foot prints and energy requirement of the building. The composting process is carried out in batch-wise operation in the open site windrow composting plant (30.7583° N, 76.7841° E) of 0.5 TPD capacity situated in the campus of the college. The windrow plant consists of screening facilities, solid waste separator, charging and composting units, where the organic wastes are accumulated in 3x4m brick lined charging unit with basal bulking agent (green waste) layer, which sequentially alternates with food, fruit and vegetable waste (30cm each) in three different layers. The repetition of the layers is done till the cumulative pile reaches 1.5m in height. The piles in windrows are turned manually on 6^{th} and 11^{th} day to generate micro-positive pressure making windrows aerobic.

(b)Two stage Composting (TSC)

In TSC, a mechanical-manual integration, the organic waste is initially added to a bioreactor 'FOODIE', and after 7 days the semi-digested organic cakes are de-confined from the bioreactor and transferred to windrow composting plant. The cakes are added to square $64m^2$open-site windrow composting plant and follow the same procedure as in SSC.

The work is a pioneer attempt to produce bio-stable, organoleptic and agronomically feasible organic compost evaluating the physicochemical parameters using the two stage composting (TSC) comprising bioreactor and windrows using mixture of raw materials: 50%green waste (60% leaves, 35%grass clippings and 5%tree branches), 50% food and fruit waste, to produce compatible compost in 110 days in TSC, hence making the college fully organic.

(ii)Energy Saving:

The college adopted compilation and computation of data in survey analysis to get retrofitting (replacing the old tubelights with LEDs), in order to have building resilience in energy conservation.

The college has constituted "Students Light Patrol" in every Department to check empty classrooms, laboratories and other spaces to make sure the lights have been turned off when not in use. A student energy patrol is to streamline the input process. The inputs done by student light patrol to conserve the energy are;

- Turn off and unplug all appliances (cell phone, laptop/Desk Top) when not in use or fully charged.
- Keep electronic items on a low brightness setting to save energy.
- Turn off lights, fans and AC when you leave a classroom/office room/staff room
- During the day, maximize natural daylight by using natural light instead of overhead or fluorescent lights. Turning off one fluorescent light for an hour a day can save 30 kg of carbon dioxide emissions per year

(iii) Say No to Plastic:

In order to minimise the use of plastic in the campus, the college has observed Saturday, as "No Plastic Day"and organised lectures, workshops, rallies on regular basis. On July3, "The International Bag Free Day" was celebrated to create awareness among the staff, students and community. For segregation at source, the college has installed different colour dustbins for waste collection as per texture(Dry, wet, medical waste and E-waste).

(iv)Smoke Free and Tobacco free campus:

The college has taken suitable steps like installing insignia, organising awareness camps, and displaying placards to highlight the need for a smoke-free and tobacco-free campus for sustainable environment.

(v) Water Recharging:

The college has constructed rain water recharging system for the recharging of the water table and to prevent surface water run-off, saving potable water,hence reducing water bills and reducing carbon footprints of the college. This also helps in maintaining water table in and around the campus.

(vi)Solar grid System:

The institution installed a Solar Grid system with capacity 495 kWp. A solar roof top system is an investment that appreciates with time as there is constant increase in savings and every unit of solar energy helps prevent 0.7 kg of carbon dioxide emission.

(vii)Vermicomposting Unit:

The college has vermicomposting pits(10x3x2 feet) with red earthworms (*Eiseniafetida*),where the Cow dung and chopped dried leafy materials(1:1) are kept for partial decomposition for 15–20 days. A layer of 20cm of chopped dried leaves/grasses is kept as bedding material at the bottom of the bed and middle layer 10 cm of cow dung. Red earthworm (1500-2000) is released on the upper layer of bed. The black and granular vermicompost gets ready in 60 days, which is being harvested, sieved, graded and utilized.

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