Narmada Education Campus

Environmentally Sustainable-Green Campus

Climate change is one of the biggest challenges that world is facing today. Climate change is likely to lead more intense and more frequent extreme weather events, such as flooding, drought and storms. This has major implications for our ecosystems, seasons, animals and their habitats and for people. Major cause of climate change is global warming. Most of observed temperature rise is caused by increase concentrations of greenhouse gases (Co_2, Methane, Nitrous Oxide, etc.) in the atmosphere, resulting from human activities such as fossil fuel burning and deforestation. As problem of global warming is affecting every nation in the world, all nations are mandated to reduce their greenhouse emissions. Govt. of India has taken no. of measures including establishing action plan under Climate Change Division of MoEF. As a responsible organization, it is our duty to contribute in all best possible manners for the cause of sustainable development.

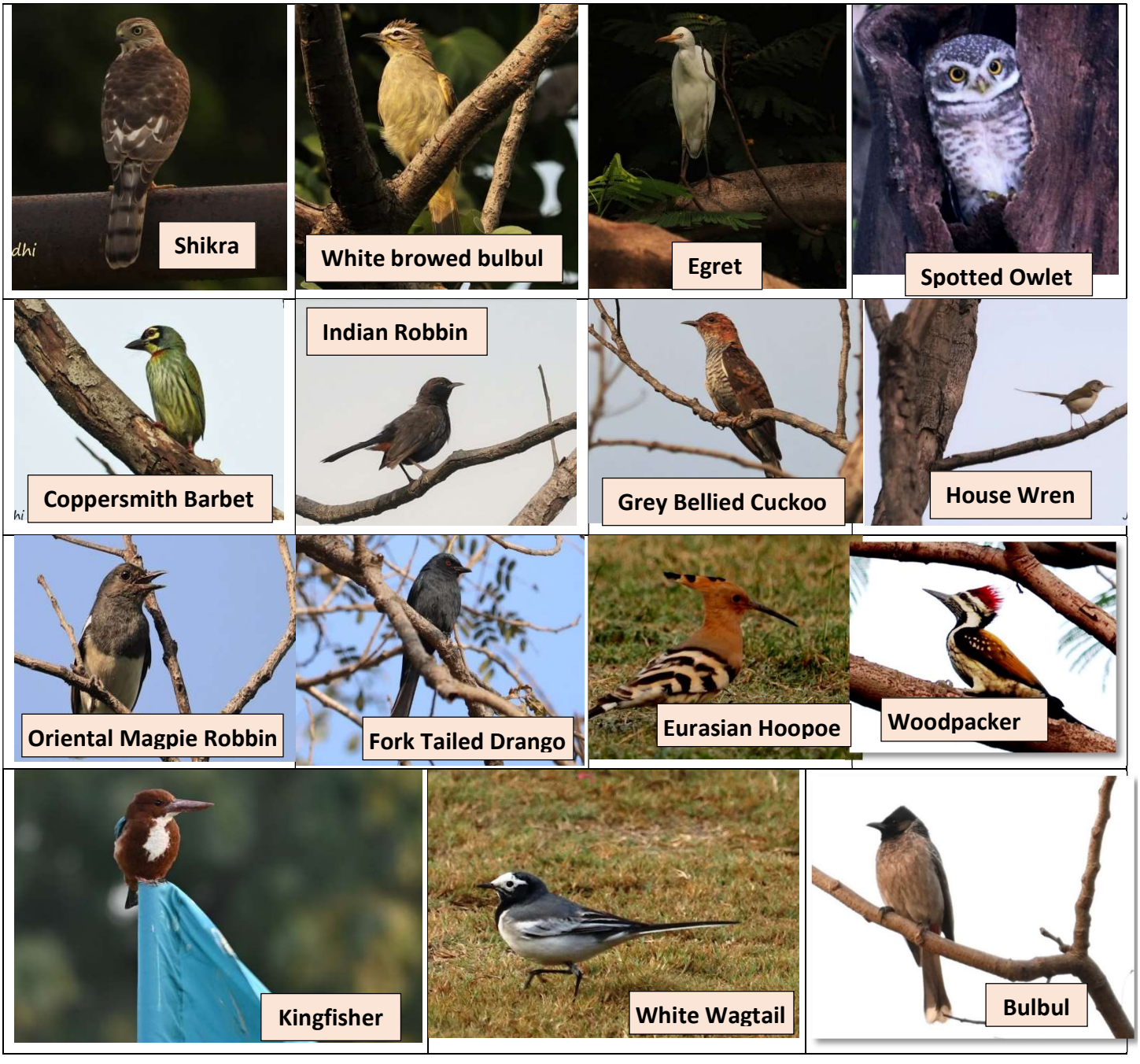
15 acres lush green Narmada Education Campus with more than 500 trees and other flora & fauna, are key assets that must be enhanced and preserved. With 2300 students and faculty/staff members utilizing the campus along with various facilities and required resources, it is our responsibility to conserve the environment in more sustainable way. Instead, we are committed for upgrading the environment in and around our campus, rather than degrading it by our day to day activities.

Environment Conservation Measures Taken on the Campus:

1. Flora & Fauna on the campus:

Flora (plant life) and Fauna (animal life) are significant part of our ecosystem, keeping the balance of oxygen & carbon dioxide in the air, providing food & medicines, boosting local economy and enhancing overall beauty of the nature. Our campus is blessed with rich variety of flora providing best habitat for avifauna (Birds life).

Birds inhabiting on the campus are:



Variety of plant life available on our campus:

2. Utilization of Renewable energy:

We have installed roof top solar on terrace of NCSC building, producing electricity for all our need, from clean source of solar radiation.

Installed capacity of Roof top solar	Average electricity produced/month	Average electricity consumption/month	Reduction in CO_2 emission/year
60 kw	8500 units	8000 units	85000 kg

Besides reduction in CO_2 emission, in last 11 months, total 79.6 Mwh of electricity has been produced, which has saved approx. Rs. 5.5 lakhs to the college campus.

3. Implementing Energy Efficiency Measures:

Replacing lighting fixtures and fans with more energy efficient alternatives. Presently, 60 no. of fans are replaced with BLDC fans, which can save 60% power compared to normal fans and subsequently, all fans are to be replaced with BLDC fans. Similarly, all lights are replaced with LED lights in place of fluorescent tube-lights, CFL or tungsten bulbs.

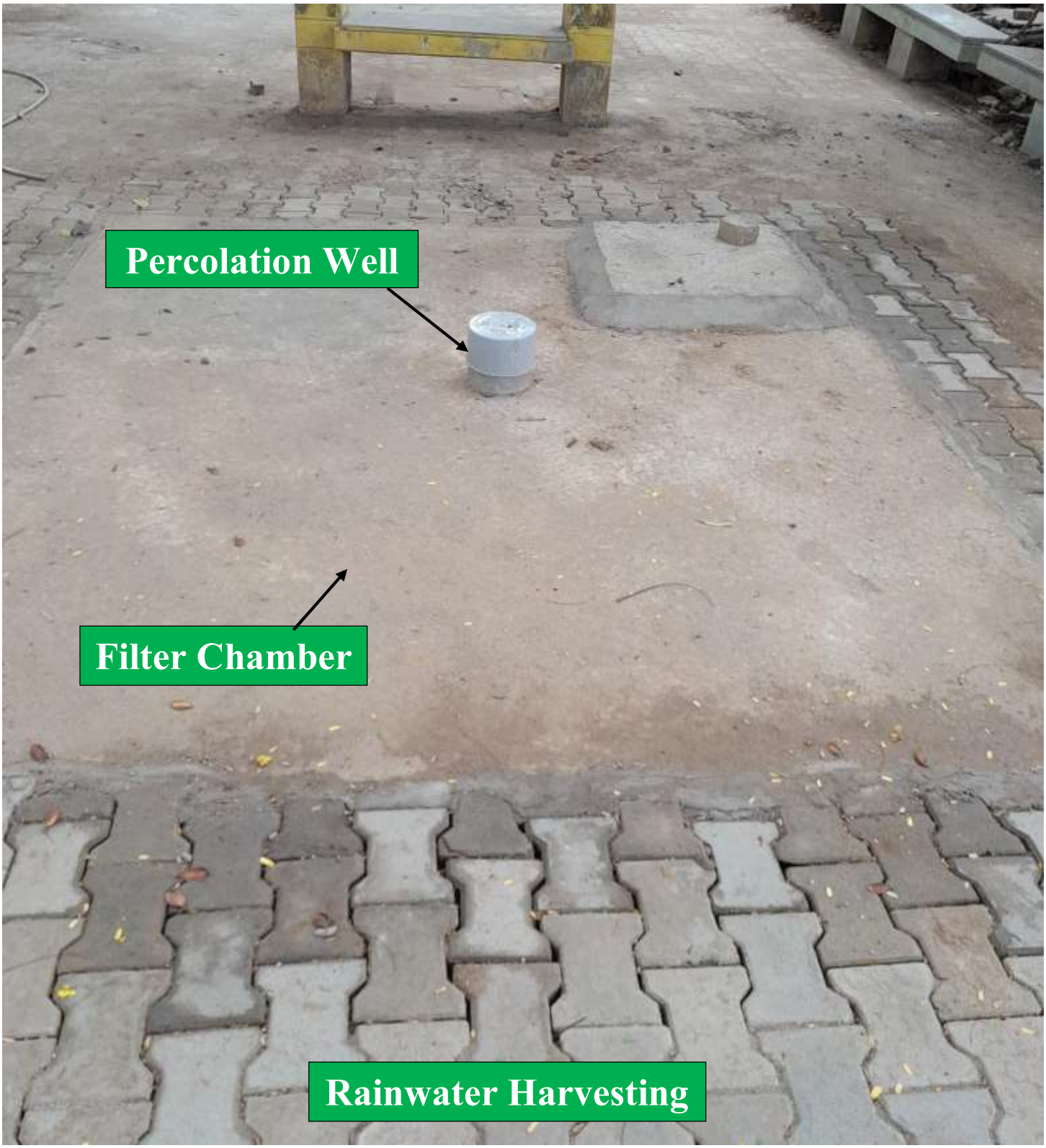
4. Water Conservation Measures:

Considering 2000 students & staff on campus and requirement of 45 liters per head (as per IS 1172), total water requirement on campus can be considered as 90,000 liters/day. Water meters are installed at two tube-wells to measure total quantity of water pumped out, which is actual daily consumption & it is equal to average 70,000/- liters/day (2.5 crore liters/annum).

Rain water Harvesting:

Considering average rainfall of 750 mm/year and 15 acres (60,000 m^2) of campus area, total rain water quantity falling on campus is 45000 m^3 (4.5 crore liters). It is planned not to allow this rain water to flow out of campus, to the drain outside, eventually meeting the saline water of Narmada River, instead, this water will be percolated into the ground, to recharge the ground water. This will help to raise the ground water table and improve the quality

of ground water. All rain water collected in front 5 acres of land, which include two college buildings & paved area, will be percolated to ground with the help of two percolation wells. 10 acres of backside area, which include playground, canteen and other open area with plantation, rain water will be collected in small pond, eventually percolating to ground.



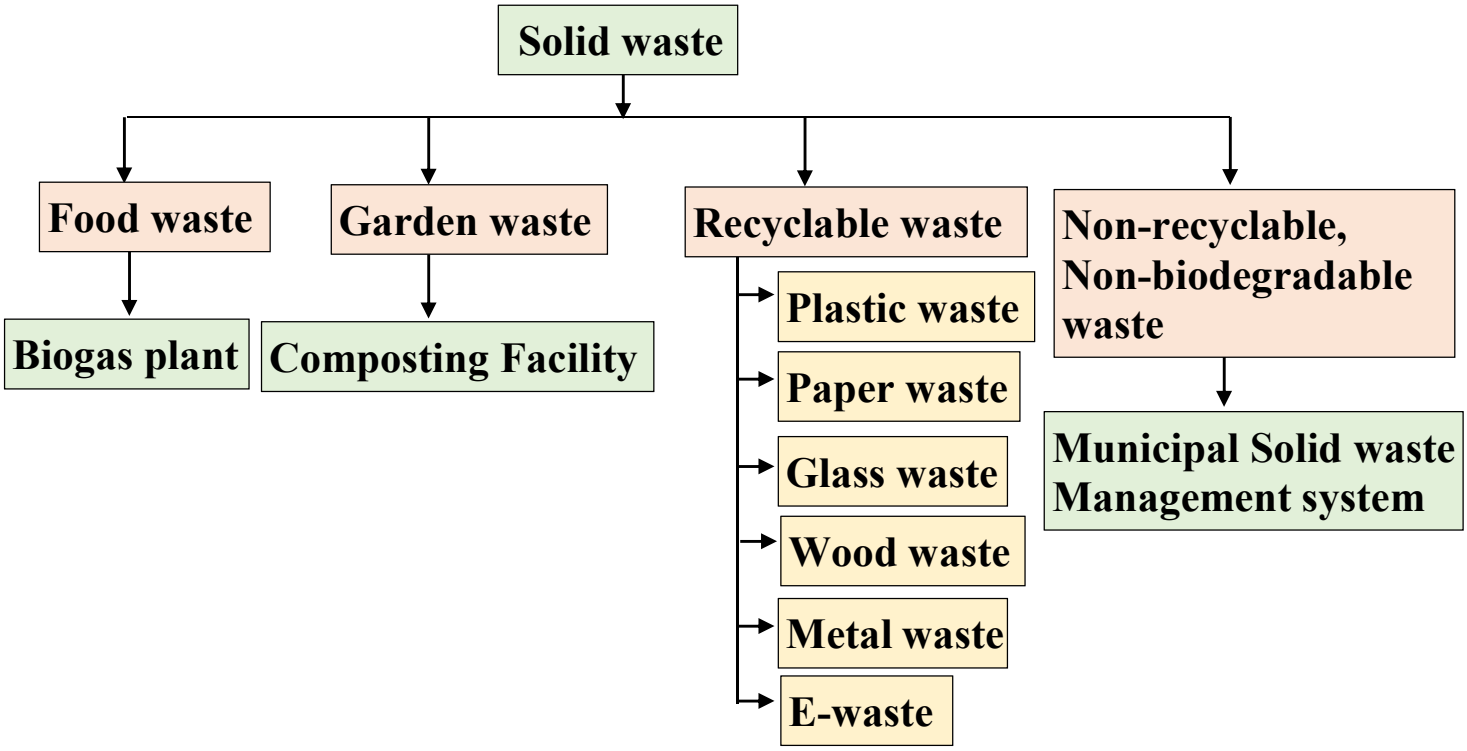
Pure water requirement for Chemistry Lab.:

For chemistry lab., normally we are using distilled water for preparing various chemical solutions. Since rain water has very little quantity of dissolved salts and it has been decided to use rain water for chemical solutions instead of distilled water. For this purpose, filtered rainwater from terrace is being collected in separate tank.

5. Sustainable Waste Management Practices:

a) Solid Waste Management:

Solid waste on the campus is classified as below:



i. Biogas plant for food waste on campus:

2 m^3 floating dome biogas plant has been installed behind the canteen, mainly to convert food waste generated from canteen into biogas, to be used for canteen kitchen.

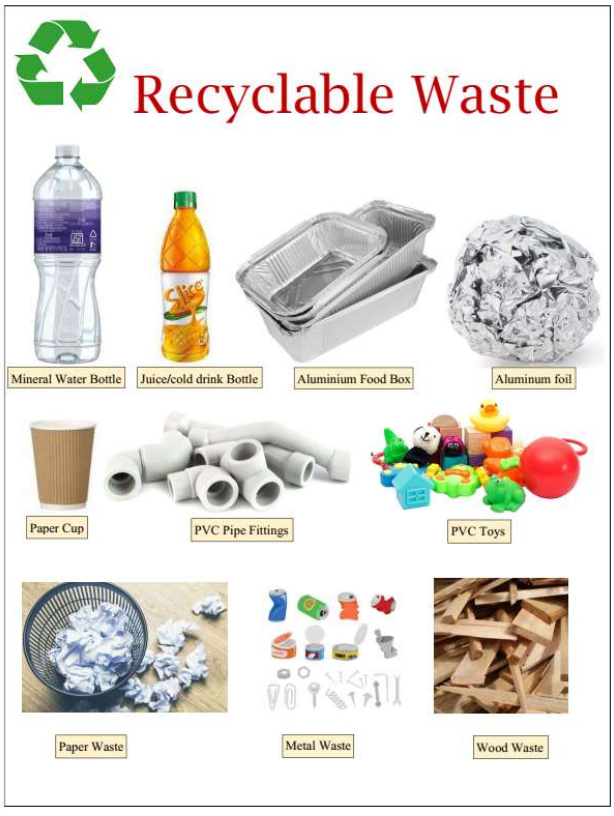
ii. Composting facility for plant waste:

2 composting pits of the size 3m x 6m x 1m, have been constructed to convert all garden waste, leaves, etc. into organic compost, to be used as fertilizer required for our green campus.

iii. Recyclable waste:

Guidelines for managing Recyclable waste on Campus:

1. **Food Waste-Bin**: All food waste shall be put in food waste-bin kept at canteen. This food waste along with food waste generated from canteen will be fed into biogas plant installed at canteen.
2. **Recyclable Waste-Bin**:
   a. All Plastic waste (except plastic carry bags less than 120 micron thickness, snacks pouches, chocolate-biscuits wrappers-sachets, etc.)
   b. Paper waste
   c. Wood waste
   d. Metal waste
3. **Glass waste-Bin**: Glass waste shall be wrapped in bag available in admin. Office and shall be put in waste-bin kept near admin. Office, besides main door of NCSC building.
4. **E-Waste**: Any E-waste and used batteries shall be kept on table kept in admin. Office.
5. **Non-Recyclable Waste-Bin**: Any waste not described above, waste such plastic carry bags < 120 micron thickness), snacks pouches, chocolate-biscuits wrappers-sachets, etc. can be kept in this bin.



b) Efficient handling of liquid waste:

I. Sewage :

All wastewater collected from toilets and other sources flows to septic tank and outflow from septic tank flows to drainage system of Zadeshwar Gram panchayat.

II. Chemistry Lab. Wastewater :

Wastewater generated from Chemistry lab. during performance of various experiments, has traces of many chemicals. This wastewater shall not be disposed into normal sewerage system. So a separate underground tank of 16000 liters capacity, has been constructed to store this wastewater. Periodically, this wastewater will be disposed of, to Common Effluent Treatment Plant, Ankleshwar with the help of tanker.

III. RO wastewater :

For drinking water requirement of about 4000 liters/day, we have RO water plant installed on terrace. Water from tube well has around 1300 TDS and water purified from RO plant has about 300 TDS. For every 1 liter of filtered water, an average RO water purifier wastes approximately 3 liters of water. So in our case, about 12000 liters of wastewater every day. We have installed a storage tank for this RO waste water on terrace. This RO waste water is being used for all our requirement in washrooms and in Chemistry lab.

At the last, let all of us join our Green Campus initiative,

Reduce your footprint & Be a Green Warier:

1. Follow the philosophy of "**Reduce, Reuse and Recycle**" in all usages of resources in your life.

   Reduce use of energy by switching off lights, fans, A.C., when not in use, by setting water heater's thermostat at appropriate temp. by keeping AC min. temp. at 27° C, by using BLDC fans at home, by using 5 star certified products, by using LED lights and by adopting appropriate lighting requirements, by adopting solar rooftop system or other renewable energy source, by using bicycle for local travelling, by avoiding airplane journey as far as possible, (15.7 kg of CO_2 is emitted per 100 km air travel), and by avoiding using car for single person, by sharing car/taxi as far as possible.

2. **Reduce & optimize usages of water**
3. **Reuse water** after primary use for other applications
4. **Collect & use rain-water from rooftop**
5. **By adopting Vegan or Vegetarian diet**
6. **Reduce food wastage** & using food waste for biogas/compost
7. **Minimize use of single use plastic**
8. **Minimizing overall solid waste generation** from your home
9. **Planting trees** whenever or wherever possible

Shades of Green:

Please keep in mind that, we are in process of developing & maintaining our campus as Green Campus in a best possible manner with the support of all stakeholders on campus – students, faculties, staff and visitors. As green has many shades, our campus also can become more and more green with the passage of time.