Climate Change is considered as the greatest ecological, economic and social challenge of our time. The growing contributions of human generated emissions as a byproduct of our lifestyle are responsible for forcing the “greenhouse effect”.Offsetting of Carbon footprints in educational institutions is possible by switching to Energy Efficiency, Renewable Energy and Circular Economy.

### Background

- Educational institutions always had an important leadership role in society in demonstrating types of changes that used to occur with respect to the prime issues of the time. All around the world, educational institutions are taking steps to declare themselves the next carbon neutral school as a part of the global trend of becoming sustainable.
- In 2007, Victoria university school of Architecture and Design declared themselves the first carbon neutral campus in the world through the purchase of carbon credits. This concept is not a sustainable model as it does not guarantee the capture of carbon forever and also it is expensive.
- The potential for any academic institution—may be a school in a remote village or a University in an Urban setting— to become the driver for change is huge. Its role in practicing leadership in its community can be utilized to encourage and influence carbon neutral living.
- The biggest factors that contribute towards emission are Energy, Transportation and Waste. Any reduction in the carbon emission by the above sources starts with the behavioral changes (Law cost) and/or technological investments (High cost).
- In order to make these changes, the students are to be educated properly on the concept of carbon neutral campuses and methods to reduce it.
- Energy Management Centre – Kerala (EMC) have estimated the carbon footprints of 26 Schools in Kerala and have recommended implementation measures for carbon neutral campus.

### Baseline Data Survey

- Collected School - basic data
- Collected Electricity Bills
- Conducted load survey of electrical equipments
- Collected details of fuels used
- Collected Water Consumption details
- Collected Waste Water disposal and reuse details
- Collected Waste disposal details
- Conducted survey of Transportation methods
- Collected details of various trees and plants

### Estimation of Carbon Footprints

- Electricity from grid: 1913.72 Kg Annual
- Electricity from renewable: 6.00 Kg Annual
- Carbon Footprint (Electricity): 1913.72 Kg Annual
- Carbon Footprint (Transportation): 7527.34 Kg Annual
- Carbon Footprint (Fuels): 205.81 Kg Annual
- Carbon Footprint (Waste Water): 573.79 Kg Annual
- Carbon Footprint (Waste): 712.00 Kg Annual
- Carbon Offsequestration (Trees): -1605.30 Kg Annual
- Total Carbon Footprint: 13877.06 Kg Annual
- Specific Carbon Footprint: 26.44 Kg/Head Annual

### Energy Conservation & Renewable Energy

- Switch OFF lights and fans when not in use.
- Replace lights with LED bulbs & LED Strips.
- Reduce usage of lights and fans, and make use of natural lights and air.
- Practice to close water taps after use and use minimum water to wash.
- Use 60+ star labelled appliances, computers etc.
- Install a 2KW Solar PV power plant and reduce electricity bill.
- Install a biogas plant and reduce LPG consumption.

### Carbon Offset Methodologies

- Low carbon lifestyles
  - Promote public transport and bicycles.
  - Use waste water for gardening,ashing etc.
  - Install a biogas plant to dispose waste.
  - Plant more trees and plans to absorb CO2.
  - Use recycling techniques for paper waste.
  - Conduct online exams.
  - Promote Circular Economy.

### Conclusion

The Carbon footprint estimation study on the particular institution in Kerala reveals that major carbon share is contributed by Energy and Transportation. The effect is neutralized by adopting Energy Conservation, Renewable Energy, Circular Economy and Carbon sequestration.