



CONCLAVE 2021

CSE's Annual Green Educator's Network Meet

The New World (Dis)order

Building a better and greener world in the post-pandemic era

SUSTAINABLE DEVELOPMENT GOALS



CAMPUS AND SDG'S



CSE's Green Campus Initiative

- First workshop in Delhi in March 2017.
- Demand for an organized process to understand their campus and conduct green audits



Nationwide engagement



January 2018

Nationwide engagement



September 2018

Nationwide engagement



November 2018

Nationwide engagement



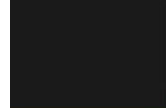
March 2019

January 2020




Historic Image







AAETI




CSE



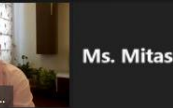
Centre for Science and Environment




AAETI




CSE



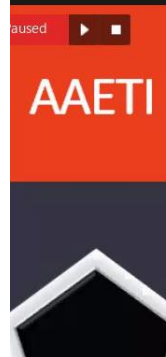
Centre for Science and Environment




AAETI



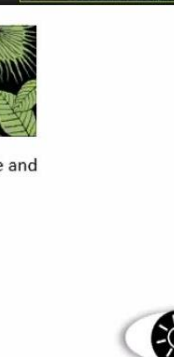
CSE




AAETI




CSE



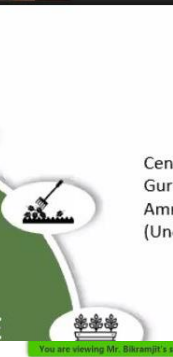
Centre for Science and Environment




AAETI



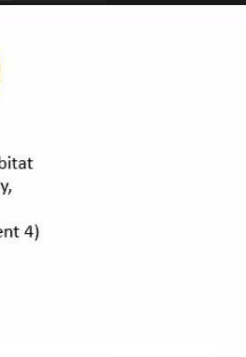
CSE




Centre for Science and Environment




AAETI




CSE




AAETI




CSE




Centre for Science and Environment




AAETI



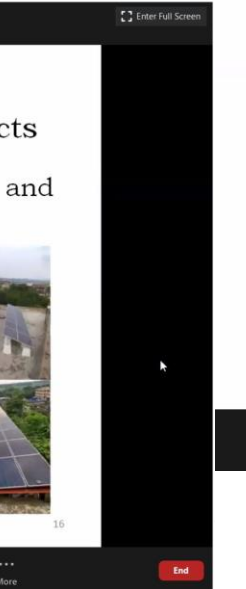
CSE




Centre for Science and Environment




AAETI




CSE




AAETI




CSE




Centre for Science and Environment




AAETI




CSE



Centre for Science and Environment



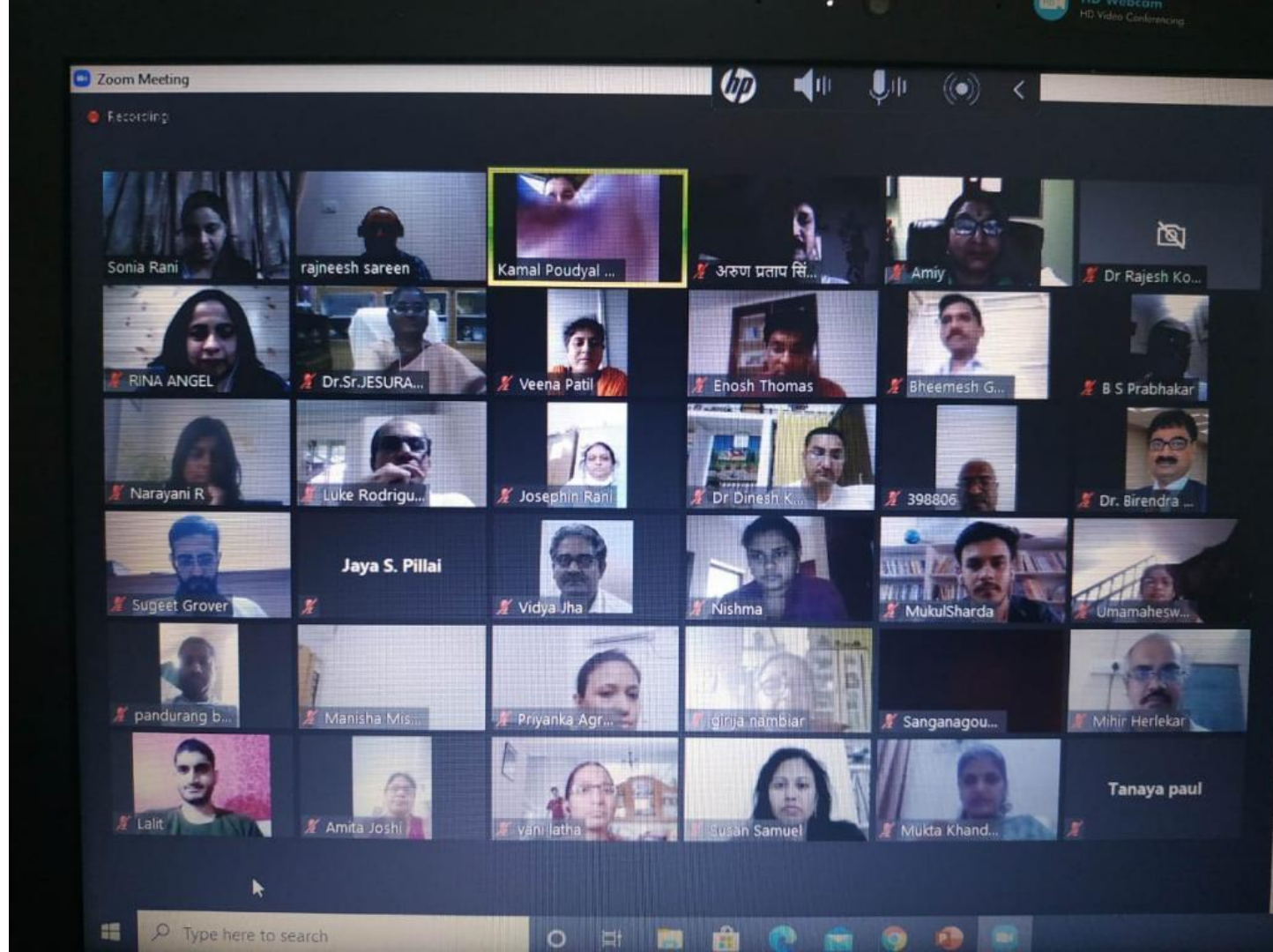
AAETI



CSE

5th June 2020
World Environment Day

16th – 17th July 2020





December 2020

Recording Paused

Lenovo Motion Control is using the webcam

Speaker View

1/2

1/2

Mute Stop Video Security Participants Chat Share Screen Resume/Stop Recording Reactions Leave


Participants: 39

Participants:

- Anuradha
- Anushkriti S
- Mitashi Singh
- Sugheet Grover
- Mandar V Dhuri
- Sanganagouda Patil
- Vagisha Pandey
- Saurabh Purushottam...
- pravin surendran
- Jomole Joseph
- Amit verma
- Jaya Pillai
- Veena Patil
- Zehra Umar
- lasylloklang Rynjah
- Divya Agarwal
- saumya verma
- Mebari Dorphang
- Dr Birendra Prasad
- scarlet
- Shikha Singh
- Awani
- Sidra Sabahat
- Yashaswini S
- jisha

Microsoft Word - Bishop Cotton Women's Christian College

BISHOP COTTON WOMEN'S CHRISTIAN COLLEGE



LAND - 30,000 sq ft


POPULATION - 1500

Pleasant Weather with sufficient sunlight throughout the campus

LIBRARY - 2812 sq ft

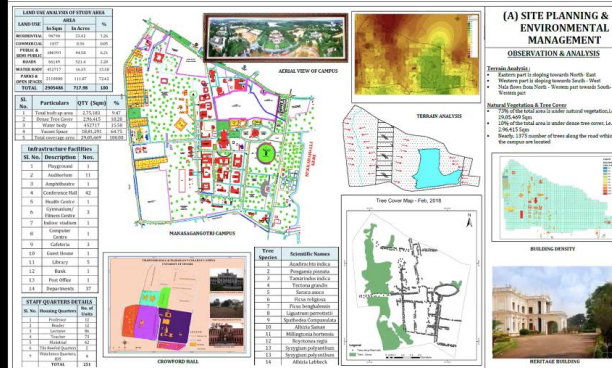
CLASS ROOMS - 30

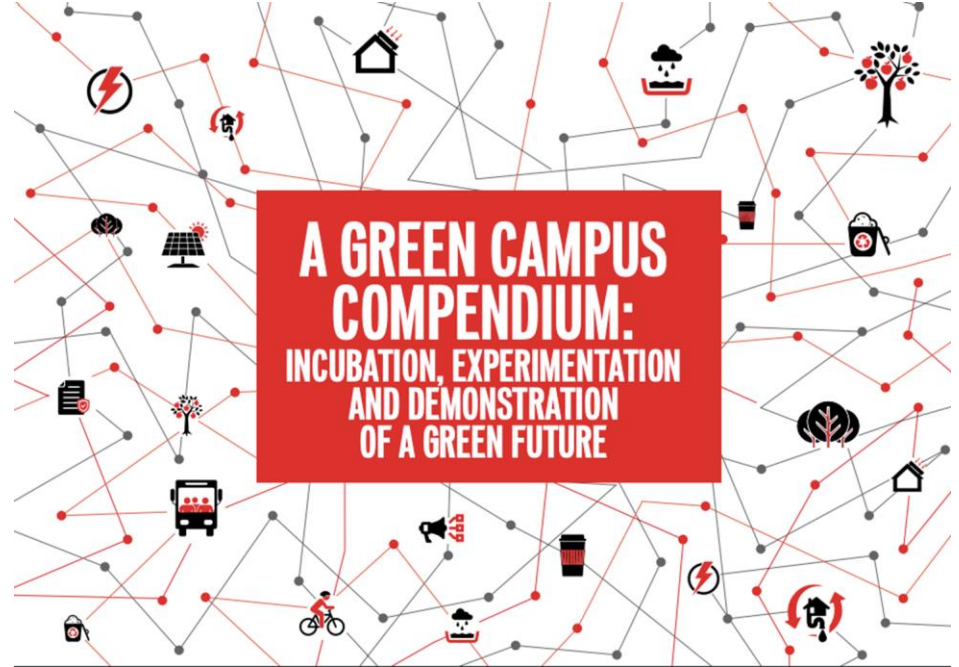
LABORATORY - 15



Dr. Susanna.P

SCHOOL OF PLANNING AND ARCHITECTURE, MYSORE







GURU NANAK DEV UNIVERSITY

Guru Nanak Dev University (GNDU) was established in November 1969 to commemorate the 500th birth centenary of Guru Nanak. Spread over 500 acres and catering to thousands of students, GNDU has set up a University Centre for Sustainability to propagate the agenda of sustainability in education, lifestyles and professional practice.



Established
12,200

A GREEN CAMPUS COMPENDIUM

THE ASSOCIATION

“The college has been associated with CSE for over three years now, and we are really honoured to have this association. Our staff members actively communicate with CSE for conducting several events through the year. Going forward, we want to undertake many innovations in the area of environment on our campus.”

DR SWAMI KAMALASTHANANDA
Principal

CSE's association with RKMVCC began at a Regional Conclave held in August 2017 in Kolkata, where CSE launched its Green Campus toolkit. Many colleges of West Bengal, including RKMVCC, had attended this launch. Following this, the college initiated the process of data collection with support from CSE.

CSE extended knowledge support to help the college undertake a number of 'green' measures—ranging from installation of mechanical composters and vermicomposting pits, to a rooftop rainwater harvesting system and a solar PV system to increase its renewable capacity.



impact on energy consumption as the building's air-conditioned spaces get restricted to only the seminar halls and laboratories.

Moreover, the large water bodies and high tree density on the campus and around it help bring down the ambient temperatures.

Catching the rain

The college has installed a rainwater harvesting (RWH) system, which caters to 20 per cent of the demand. The water that is harvested is used for experimental gardens in the Botany Department and for horticulture. The rooftop water is diverted to ponds.

Waste to restore

Organic waste on the campus is turned into compost using waste converters, or by vermicomposting. The campus uses a paper shredder to cut down the used paper into smaller pieces, which is then sold to a recycler who uses it in the packaging sector.

RKMVCC is committed not to use furniture made of plastic. Its newly constructed 1,000-seater auditorium has steel furniture which can be recycled in the future.

VISION 2019-20

The college is working to install and functionalise the following on its campus:

- Solid waste management system
- Rooftop rainwater harvesting system
- Underground rainwater recharge system
- Kitchen emissions management system
- Automatic roof cooling system

THE COST FACTOR >>

219,369 kWh/year
Total electricity demand of the college

₹6.5/kWh
Rate of electricity

72,392 kWh/year
Electricity generated by the college's solar system

₹14,25,903/year
Electricity cost without the solar system

₹9,55,355/year
Electricity cost with the solar system

₹4,70,548/year
Savings due to the solar system

MW to be produced by the campus—the University is working towards reaching that target. The solar plant's implementation and management (for 25 years) has been outsourced to a Delhi-based private company, which will provide energy to the University at a subsidised rate of Rs 3.32 per unit.

as well to allow percolation and to absorb less heat.

Green cover

The campus maintains a botanical garden spread over 25 acres, and is a member of the Botanical Gardens Conservation International. UK. A glass house has been built for ferns, orchids, succulents, high altitude and tissue culture plants. The garden is home

having a capacity of 50 litres, have been placed all over the campus for disposal of waste.

To manage organic waste, GNDU has set up two vermi-compost technology units in its Botanical Garden. These units also function as educational and demonstration sites for staff and students. The University is planning to install a biogas plant that would use organic waste, initially only that generated by the hostels on campus. The biogas generated will be used onsite, in the hostel kitchens.

• The college will also research that will help environmental sustainability in the campus



Data from NAAC
repository

NAAC
Reports

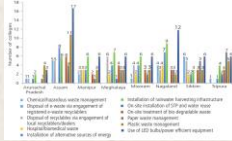
Campus
visits



Initial
workshops/
Meetings



Deep dive into
North-East and
Maharashtra



Audits of
sample
campuses



Regional
engagements



Development of
Questionnaire

Annual Green campus

Section A: General Information

1. Name of the Institution: _____

2. Address: _____

3. Contact Person: _____

4. Phone Number: _____

5. Email Address: _____

6. Website: _____

7. Year of Establishment: _____

8. Type of Institution: _____

9. Number of Students: _____

10. Number of Faculty: _____

11. Number of Staff: _____

12. Number of Buildings: _____

13. Number of Acres: _____

14. Number of Trees: _____

15. Number of Plants: _____

16. Number of Animals: _____

17. Number of Birds: _____

18. Number of Fish: _____

19. Number of Insects: _____

20. Number of Other Animals: _____

Section B: Green Campus Initiatives

1. Green Campus Policy: _____

2. Green Campus Committee: _____

3. Green Campus Activities: _____

4. Green Campus Awards: _____

5. Green Campus Recognition: _____

6. Green Campus Impact: _____

7. Green Campus Future: _____

8. Green Campus Challenges: _____

9. Green Campus Opportunities: _____

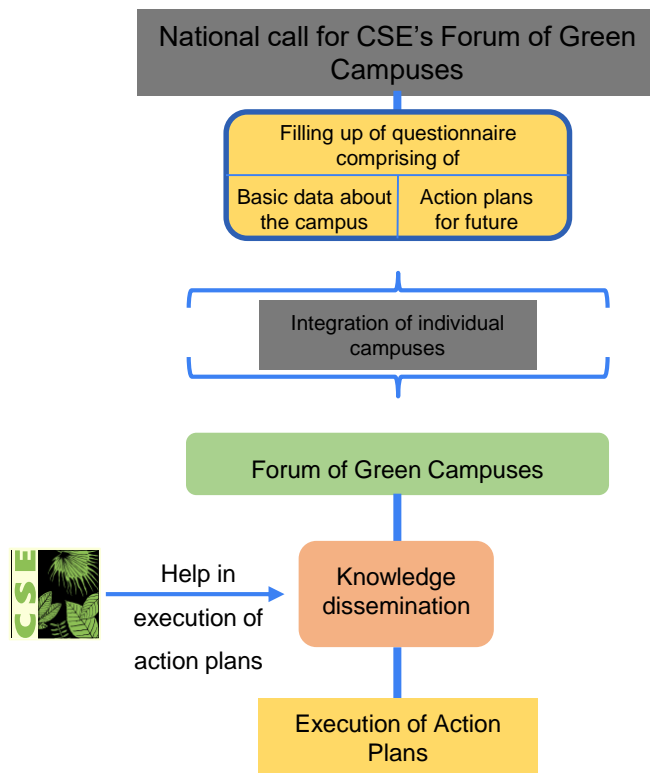
10. Green Campus Recommendations: _____

Launch of
Compendium



Nationwide
engagements

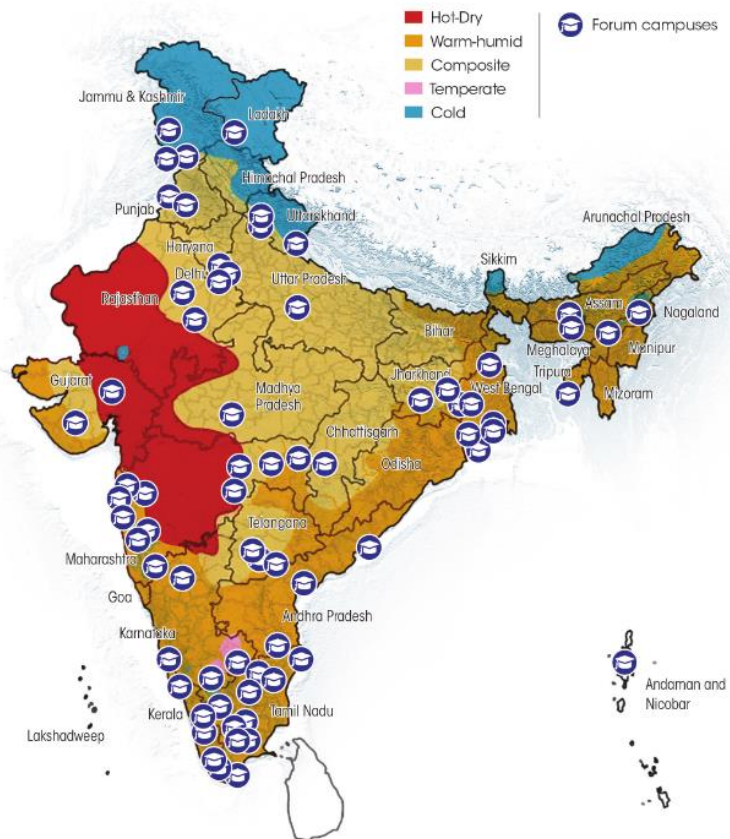




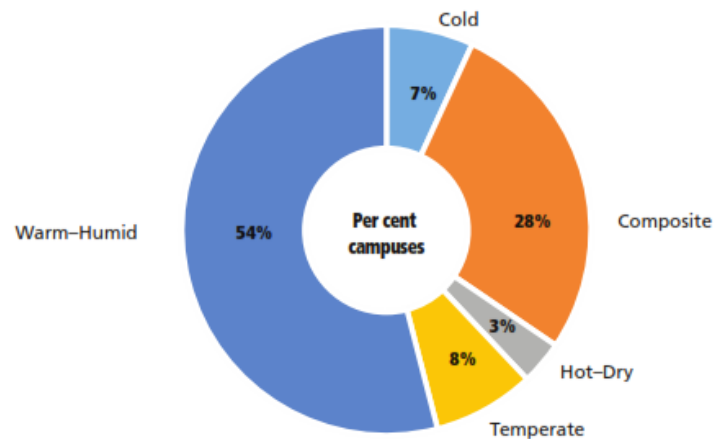
Downloadable from CSE website

<https://www.cseindia.org/green-campus-movement-10851>

Location of the forum campuses



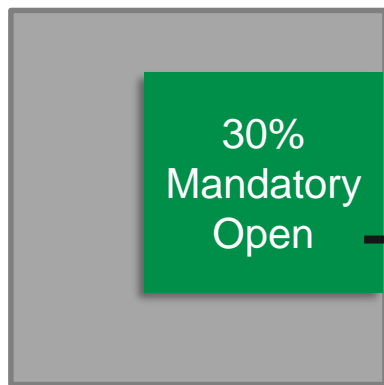
Climatic zone-wise classification of the campuses



Source: CSE analysis

Campus action plan: Enhanced Tree Cover

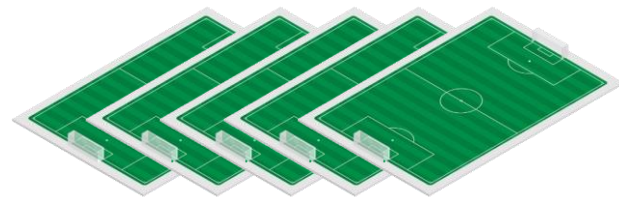
Total land area of campuses which opted for enhanced green cover in their action plan.



5-10% of this land used for enhanced tree cover



53-106 Acres of land



30-60 football fields

Carbon Sequestered for ~1000-2000 cars (running 5000 km. per year)



21000-42000 trees

ENERGY: IMPACT / POTENTIAL

Campus action plan:
Reduced dependency on air conditioning, Old fixtures replaced with efficient ones, Worked on passive design

Total energy consumed by campuses which plan to implement energy conservation measures

Enough to power



1100 – 2800

Households for an year



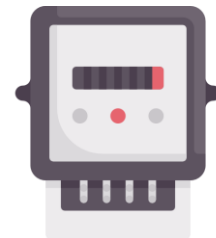
10%

2%

Energy
conservation
potential



1336600
units

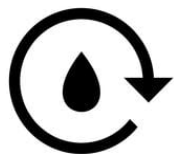


3341500
units

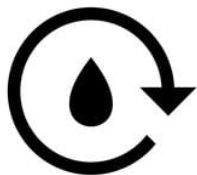
WATER: IMPACT / POTENTIAL

Campus action plan: Onsite waste water treatment system

Water that maybe recycled by campuses which plan to implement onsite waste water treatment if 10-20% water is recycled.



159924.6
kl



319849.3
kl

Enough to fill 53,000 to 1Lakh water
tankers



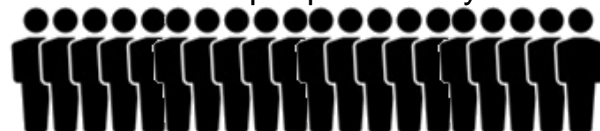
Campus action plan: Rain water harvesting

Water that might be harvested by campuses which plan to implement rain water harvesting if 5% of campus area is used for water harvesting.



633899200 kl

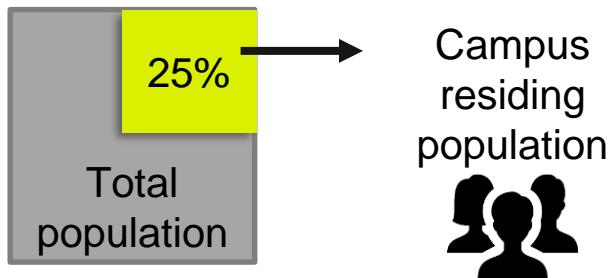
Enough to offset water requirement
of 12864 people for an year



WASTE: IMPACT / POTENTIAL

Campus action plan: Restricted single use plastic

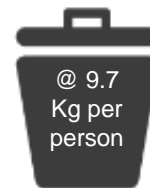
If campus residing population
restricts usage of single use
plastic.



Plastic saving potential per year



301 Tons

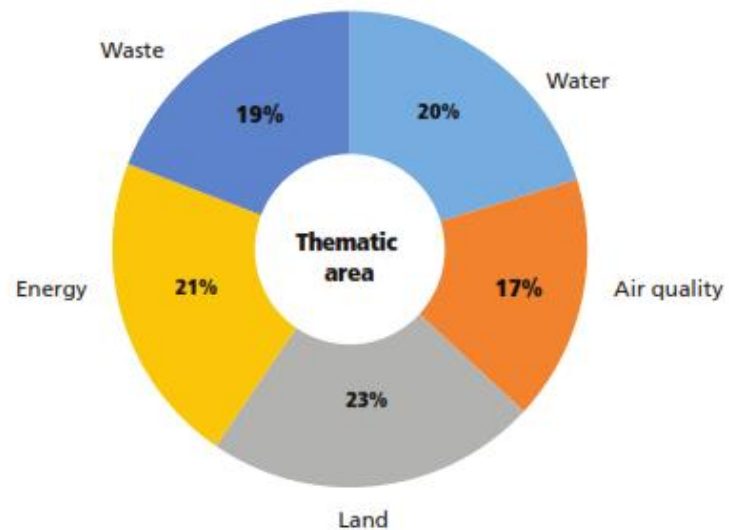


585 Tons



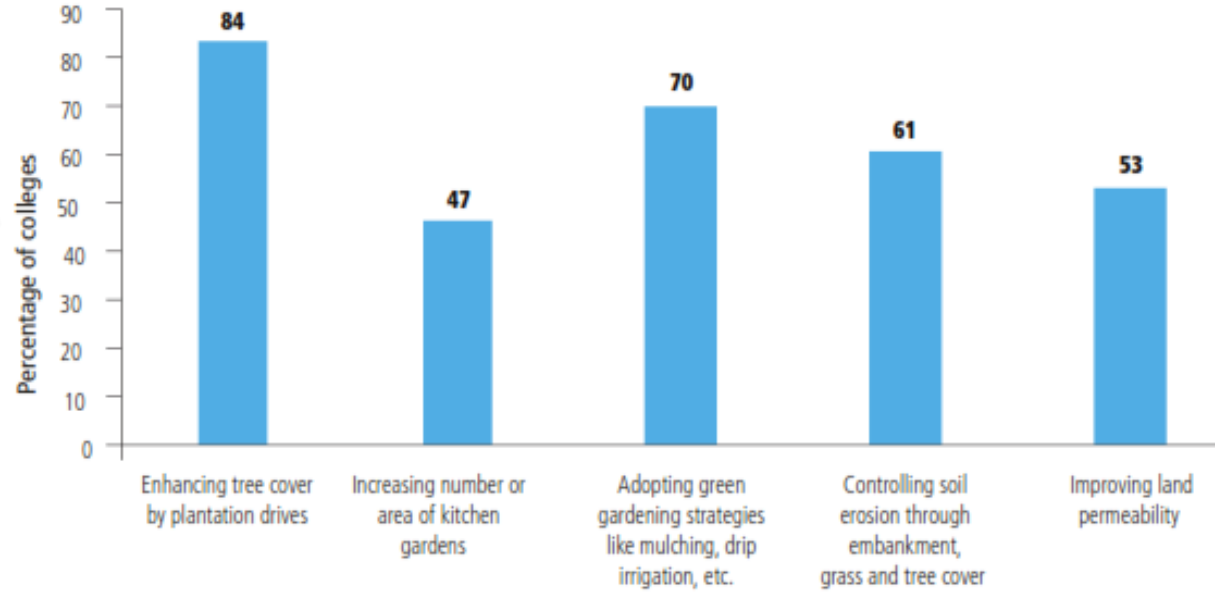
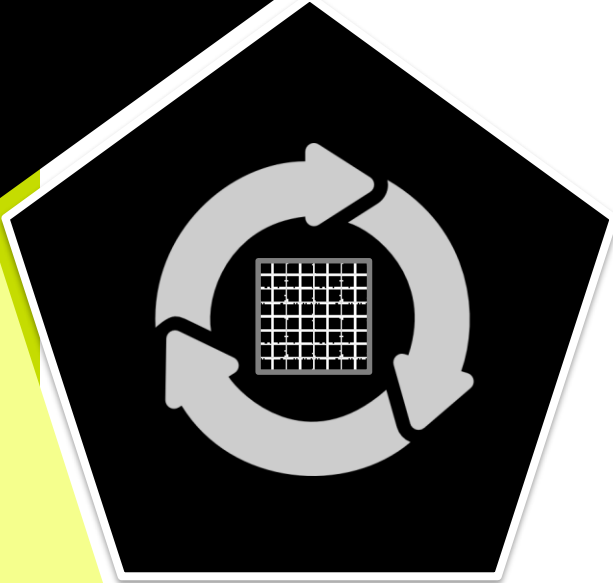
68 to 132 Asian
Elephants

Categorization of action plans declared by the campuses



Source: CSE

LAND



Mumbai slums are 6 degrees Celsius warmer than neighbouring housing societies in October: Study

WRI India published three satellite maps –October Heat series – highlighting location-specific risk exposure to citizens

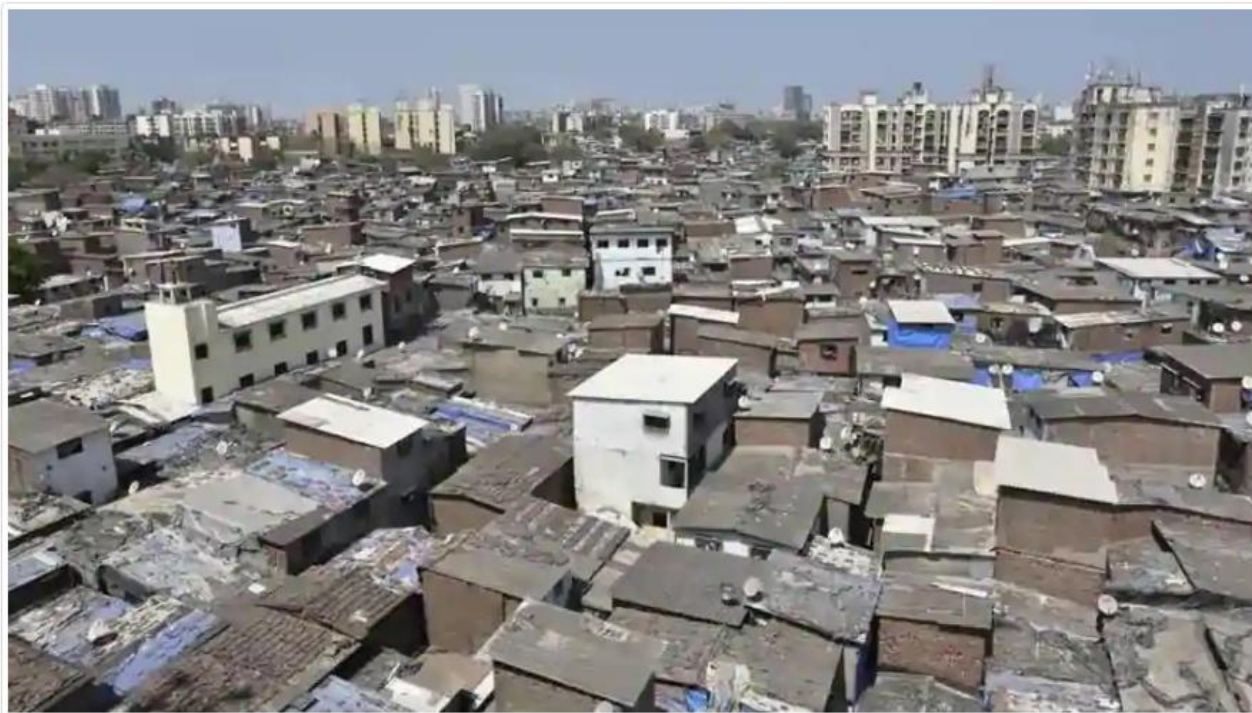
MUMBAI Updated: Nov 20, 2020, 23:49 IST



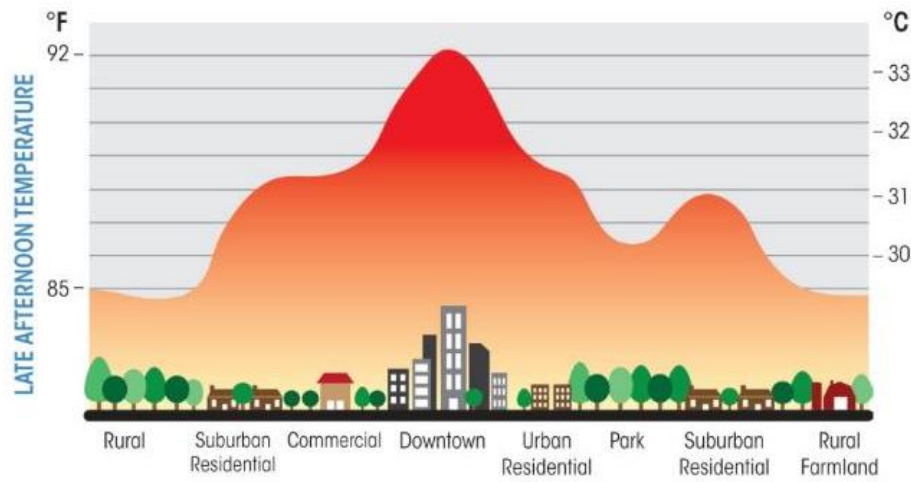
Badri Chatterjee



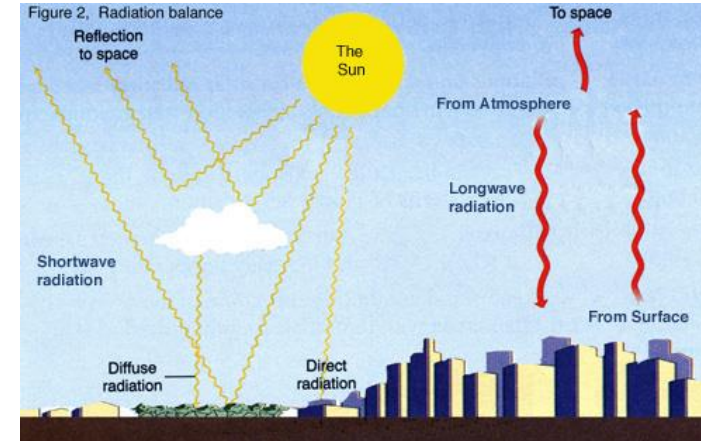
INCREASING
TREE
COVER



A total of 37% of Mumbai's households with metal roof structures are exposed to a risk of high rise in temperatures or heat risk post monsoon, stated the study.(HT FILE)



Reduction in Urban Heat Island Effect



Increasing Tree

A large, leafy tree dominates the foreground, its thick trunk and sprawling branches casting a large shadow over a group of people. The people are sitting on a low, curved stone wall. In the background, a large fountain with multiple jets of water is visible, and a paved path leads away from the tree. The scene is set in a park-like area with other trees and a clear sky.

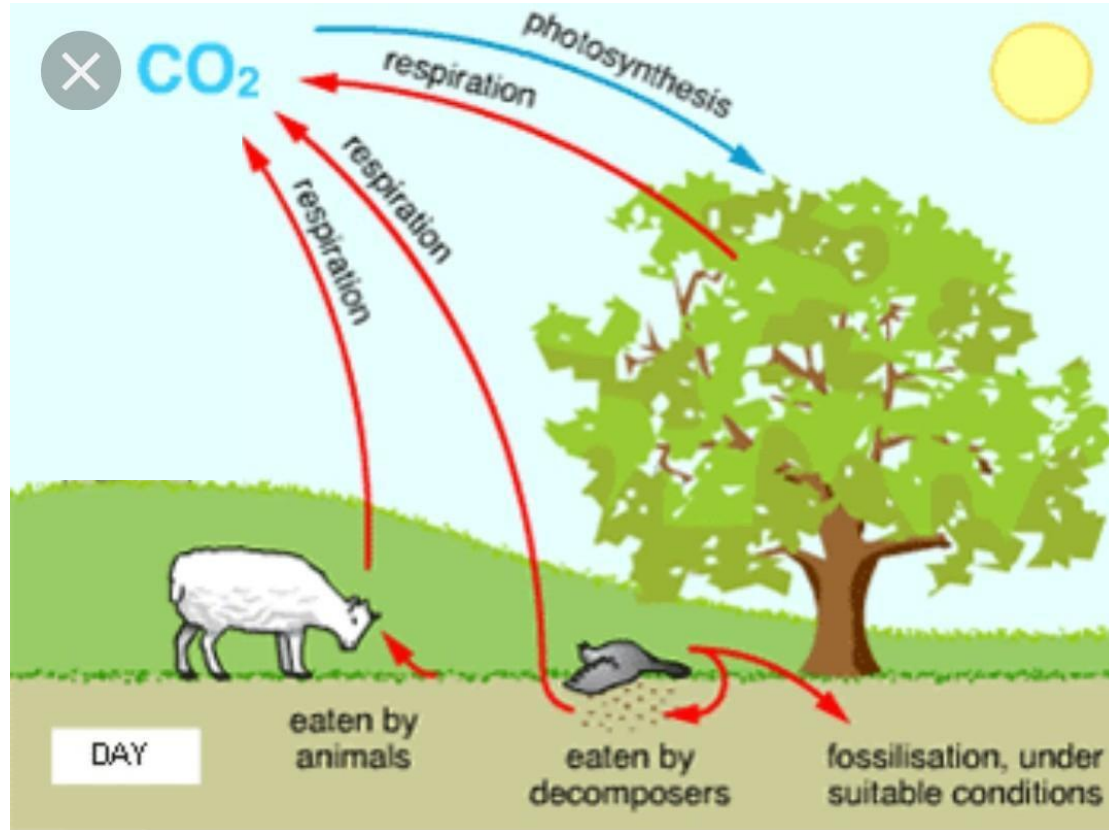
Can trees really cool our cities down?

December 22, 2015 9:34pm AEDT

Flowering shade tree in plaza to prevent heat absorption in paved surface

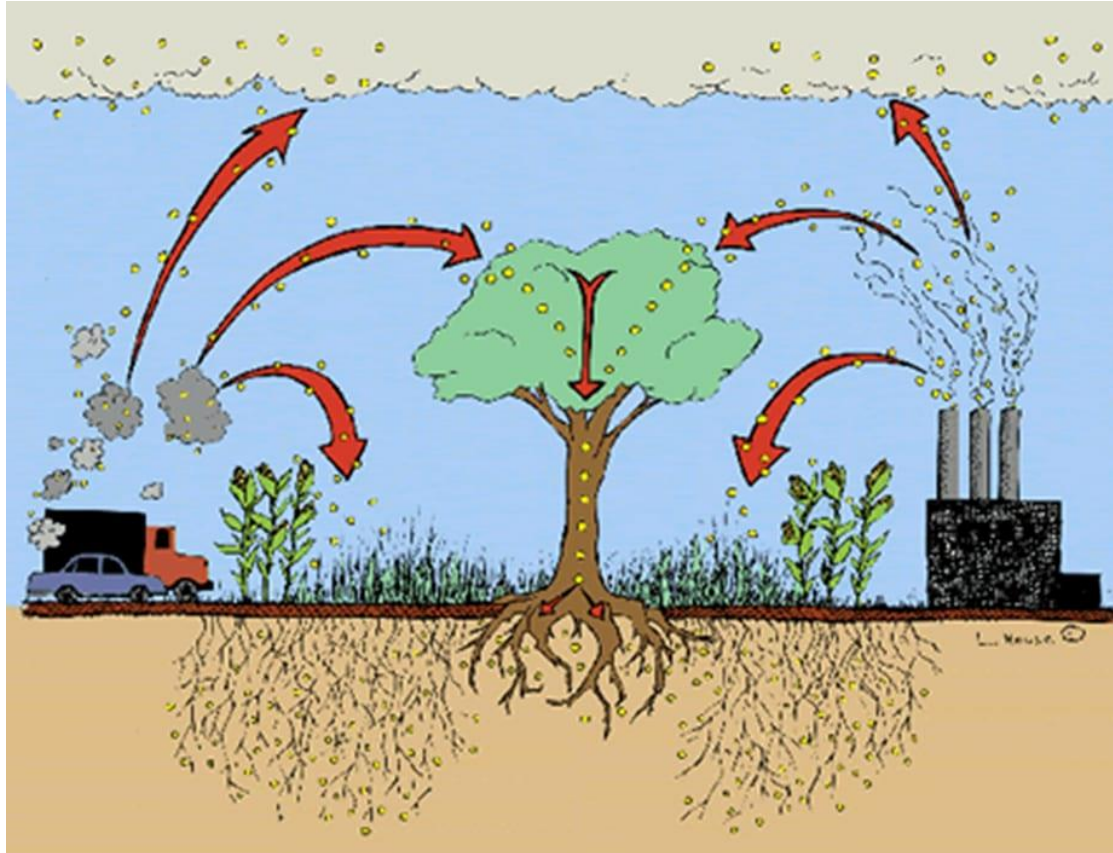
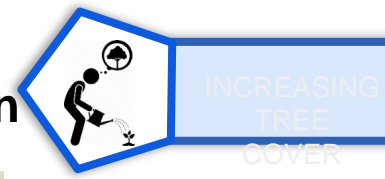
Dense plantation to cut off sightlines of the main road



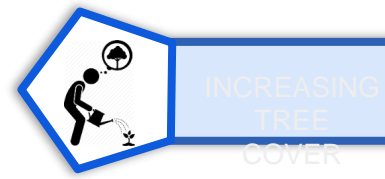
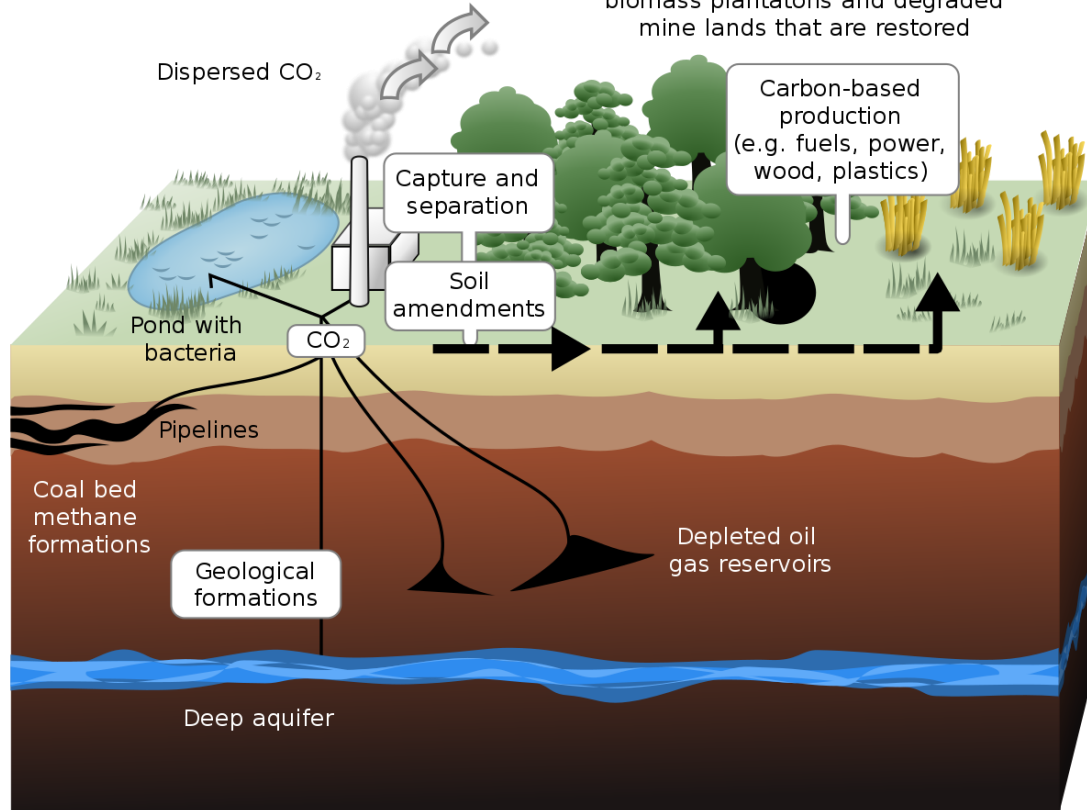


Carbon Cycle

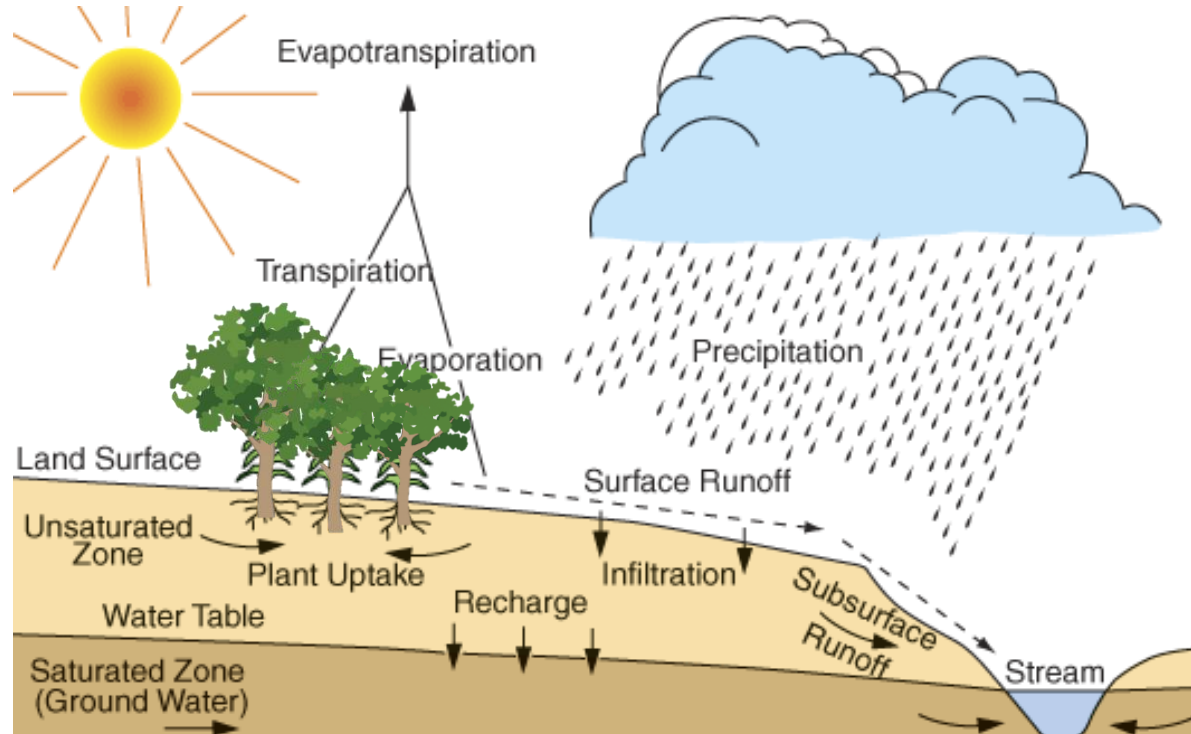
Absorption of greenhouse gases : air purification



Carbon sequestration



Infiltration and groundwater recharge



Tree Density



INCREASING
TREE
COVER



Don Bosco, Guwahati



St. Edmund, Shillong

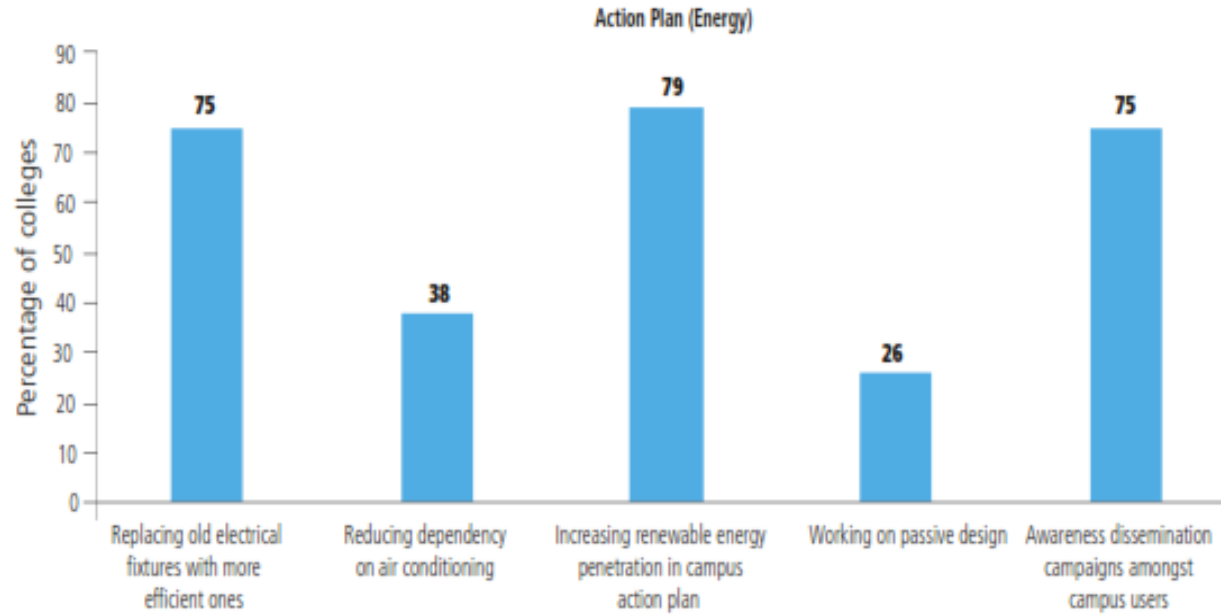
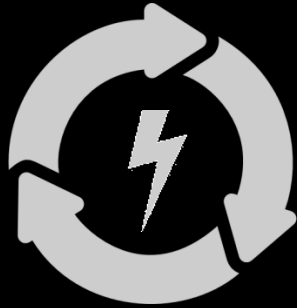


Gargi College, Delhi



INCREASING
TREE
COVER

ENERGY

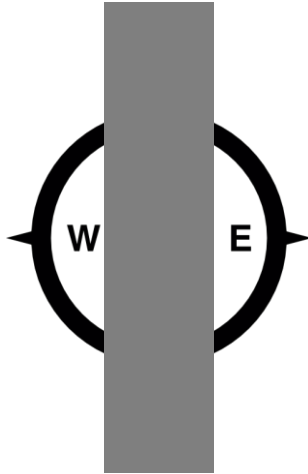




PASSIVE DESIGN

Passive Features

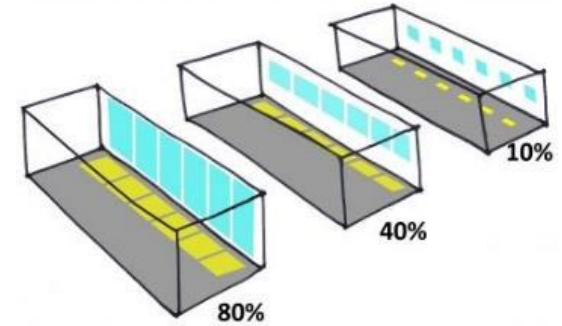
Orientation



Shading

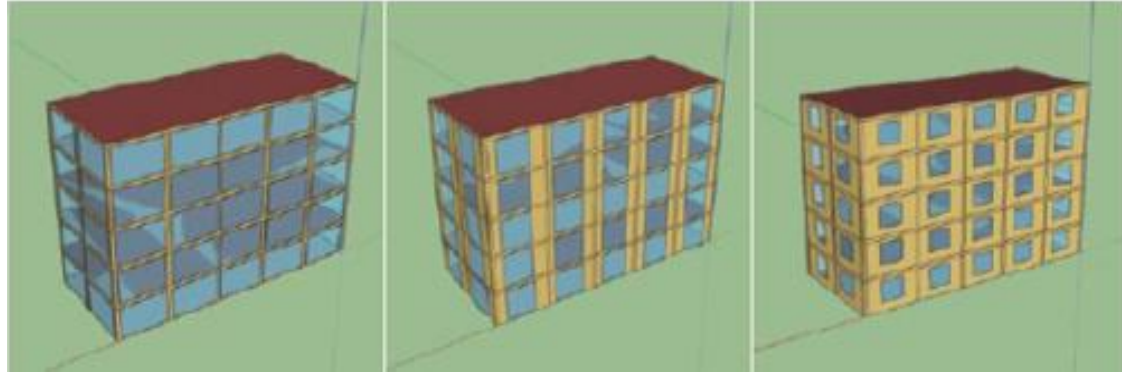


Window Wall Ratio



Window Wall Ratio

60% $\xrightarrow{\text{CSEs intervention}}$ 40%



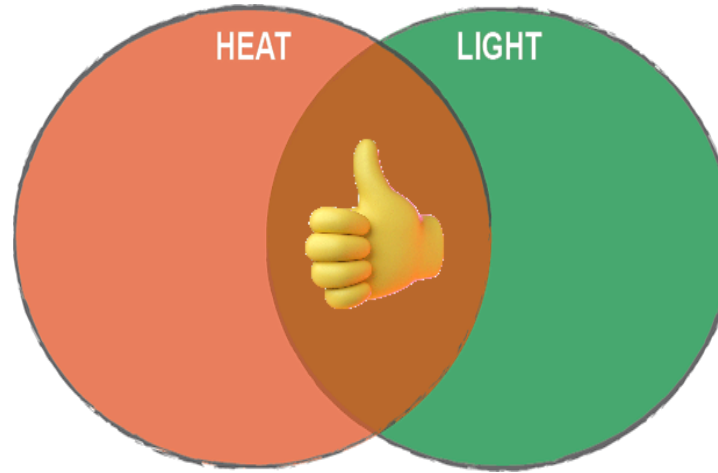
Window Wall Ratio

90%

80%

50%

Balancing Heat and Light

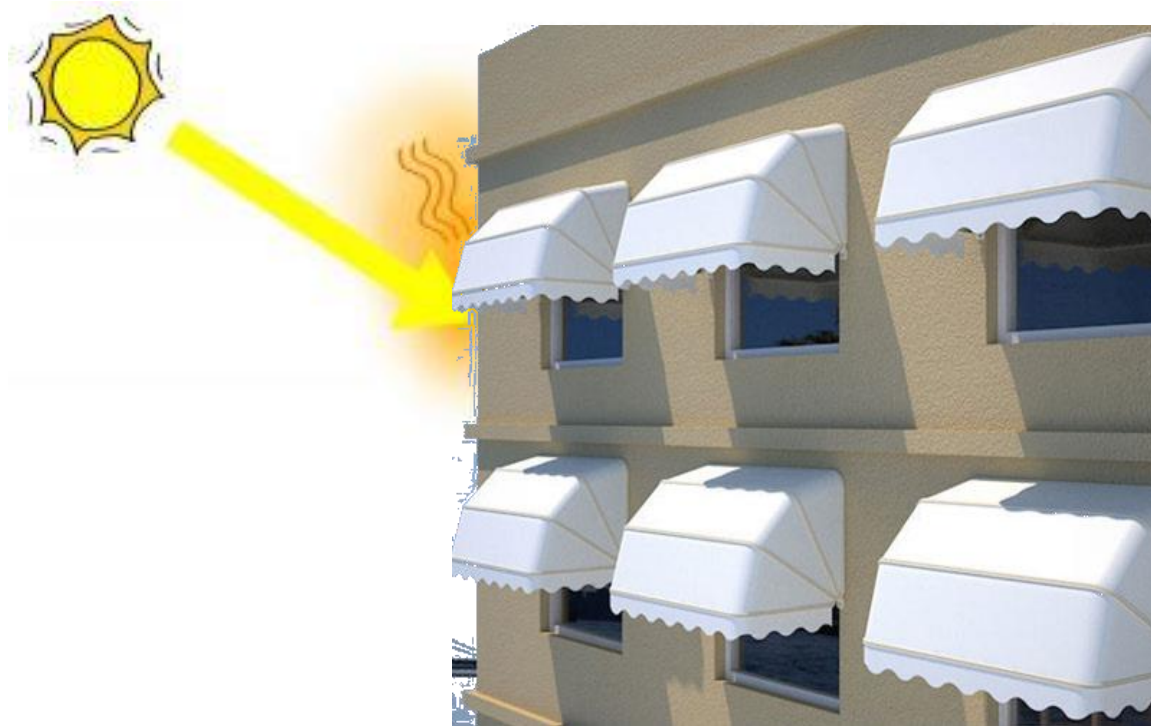


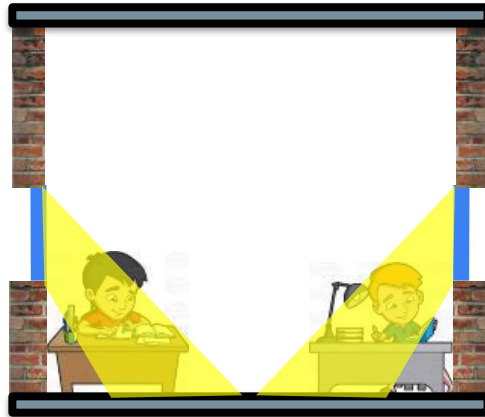
- Keep Heat Out in Summers
- Getting heat inside in winters
- Optimize Daylight getting inside

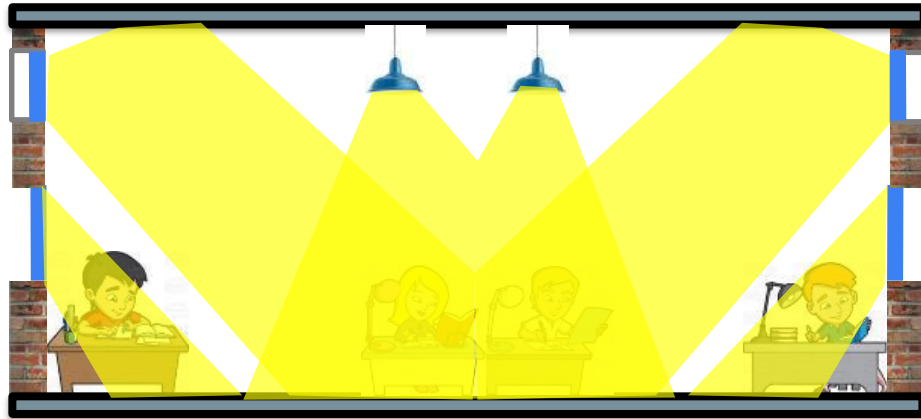


Effect of A High Window-Wall-Ratio

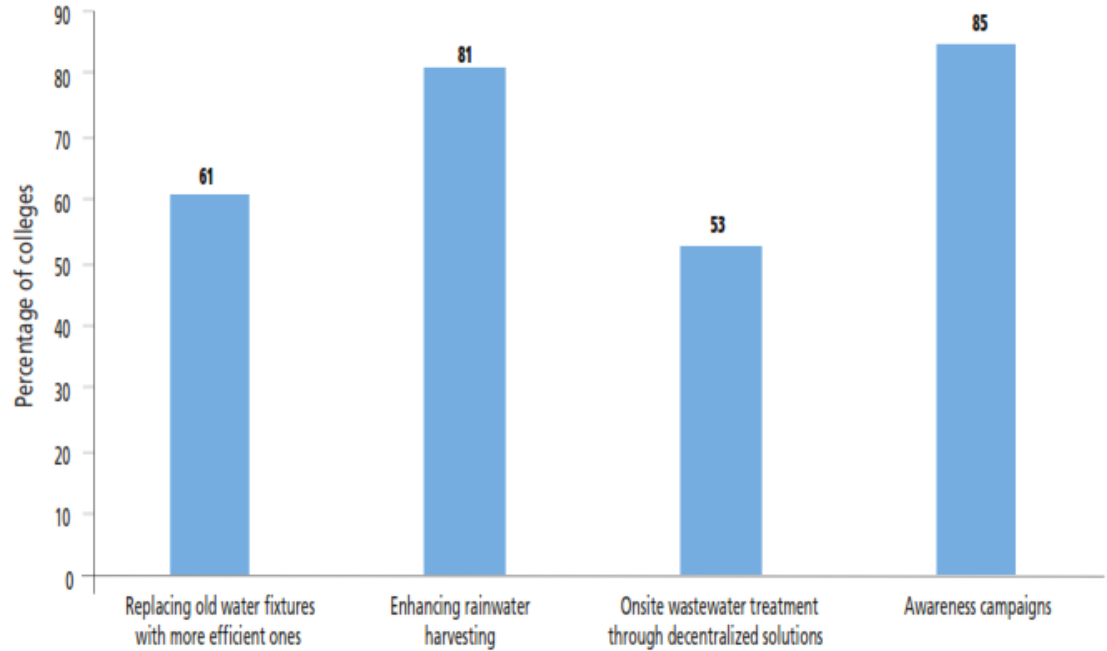


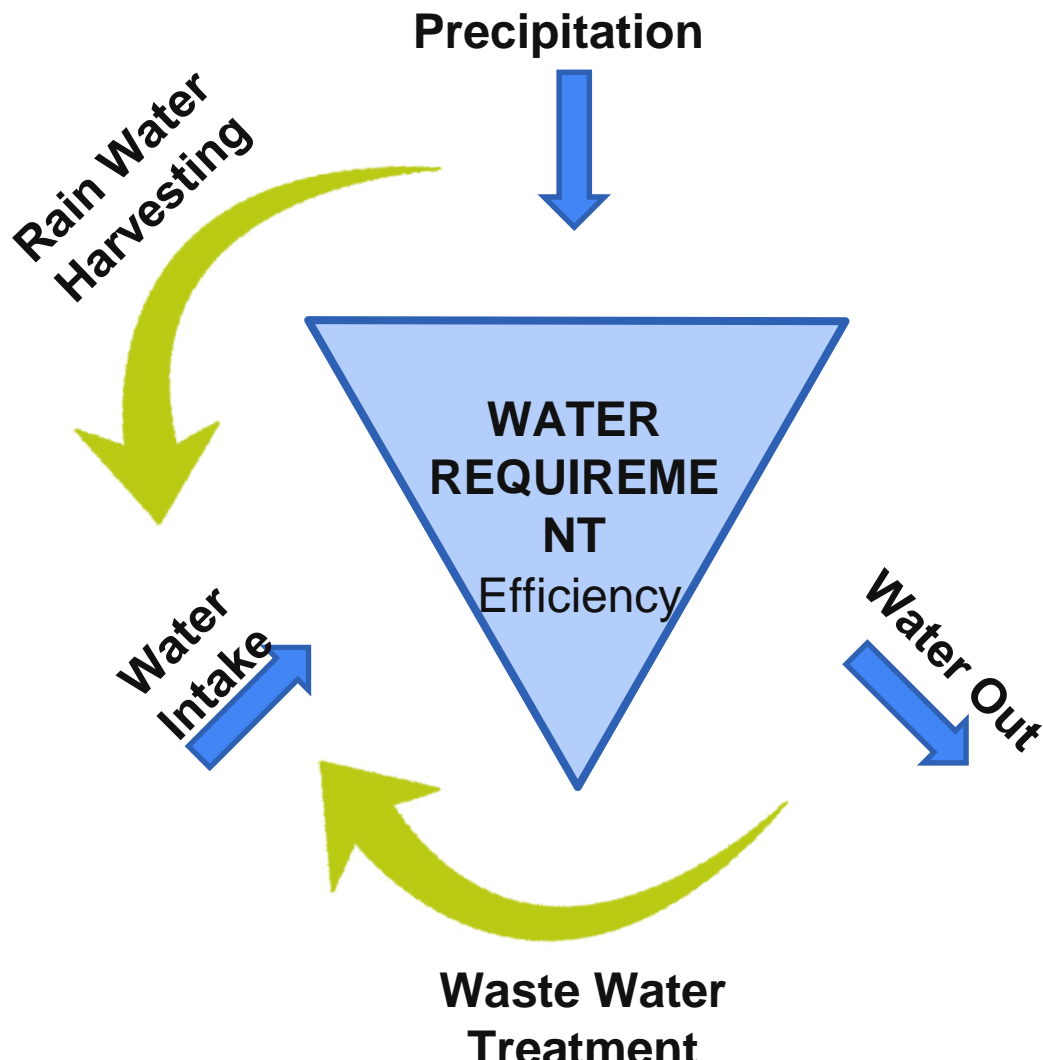






WATER





Rain Water Harvesting
Ground Water Recharge
Storage Tanks
Water Bodies

Waste Water Treatment
DWWTS
Soil Bio Technology



Efficiency
Efficient fixtures



Water Efficient Fixtures



Full turn faucet: Regular taps that use a valve action to release and restrict water flow. The water flow depends on the line pressure and diameter of the outlet rim.



Code	#4	#5	#6	#7	#9
Shape					
OD (mm)	15.4	15.4	15.4	14.3	14.3
Flow Rate	2.0 GPM	2.5 GPM	12 GPM	1.5 GPM	2.5 GPM

Code	#10	#12	#13	#14
Shape				
OD (mm)	18.4	14.4	14.4	14.4
Flow Rate	1.5 GPM	2.0 GPM	2.5 GPM	12 LPM

Flow restrictors: Deliver 5.6–8.3 litres per minute, irrespective of varying line pressure. Saving potential – 80%

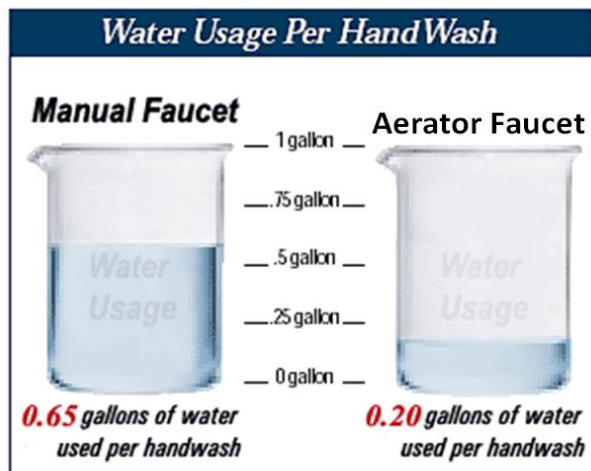


Water Efficient Fixtures



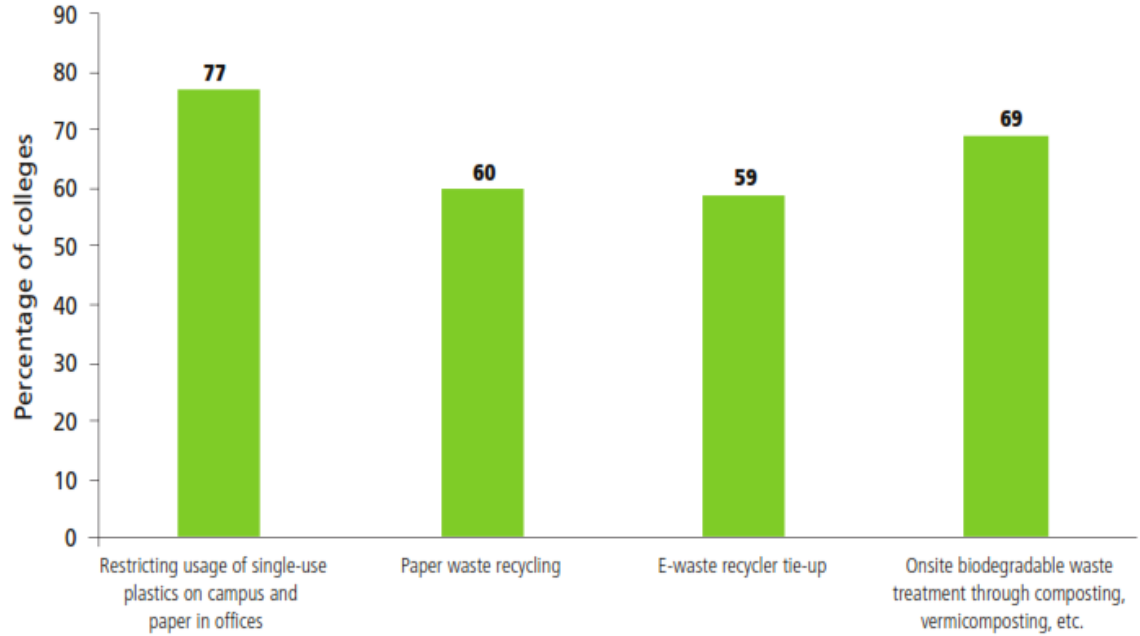
Automatic faucet: Installed with a sensor that limits the flow of water to only those times when it senses hands under the faucet. Saving potential – 75%. Also reduces vandalism and damage because users cannot leave the water running.

Up to **70%** water saving!



Aerators: Add air to the water stream to make the flow feel stronger. These can be designed for a water-flow rate from 2-8 litres per minute. Saving potential – 30%

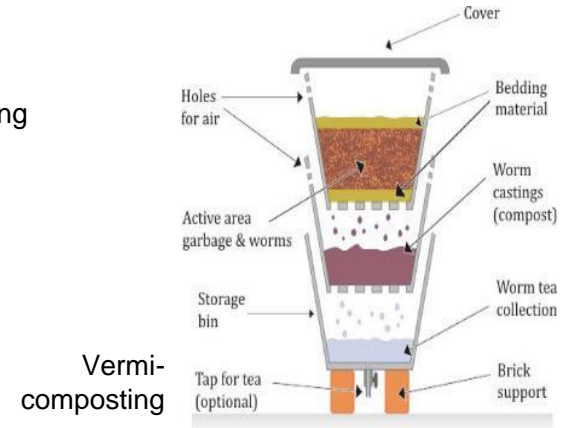
WASTE



Options for in-situ treatment



Pit composting



Vermi-composting



Khamba composting

Windrow composting



Options for in-situ treatment

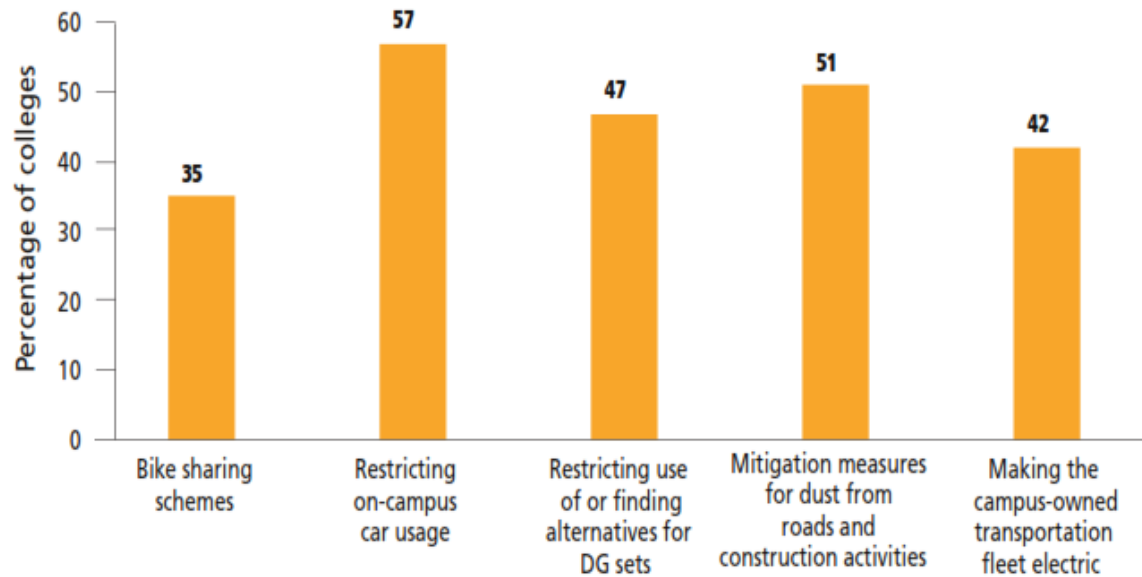


Options for in-situ treatment

- Waste per capita per day: 400-600 g/capita/day
- Properties for aerobic composting:
 - Particle size (<1inch)
 - C:N Ratio (30:1)
 - Oxygen
 - Moisture
 - Temperature



AIR



Designing Provisions for Sustainable Mobility



A GREEN
TRANSPORT
POLICY

walk

High quality, unobstructed pedestrian footpaths provide basic mobility for all. Furniture, landscaping elements, and active building edges transform walkways into vibrant public spaces.

► Leave at least 2 m of clear space to ensure that footpaths are accessible to all.

► Provide street trees and covered walkways to make walking pleasant even during hot months. Ensure that lighting is present to increase safety at night.

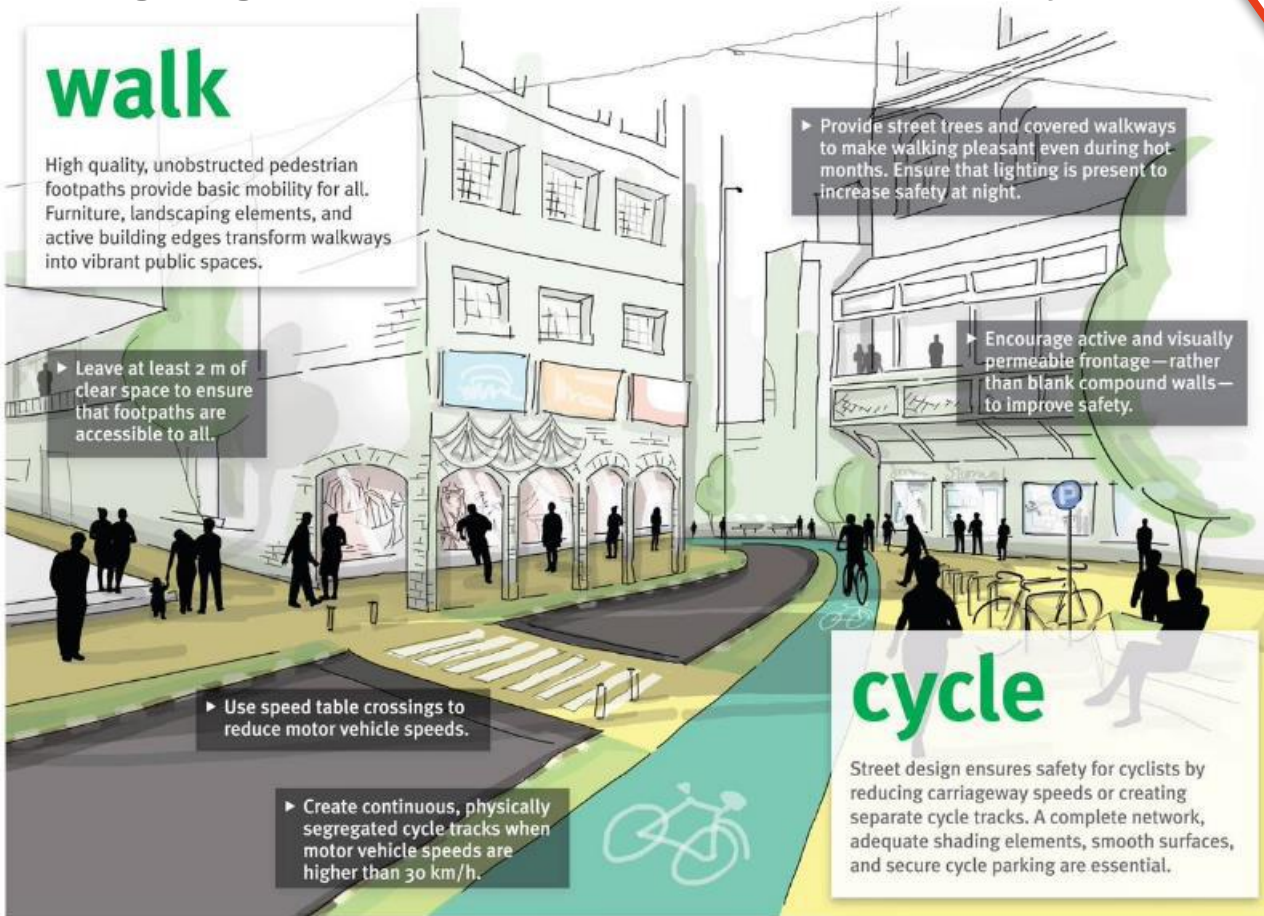
► Encourage active and visually permeable frontage—rather than blank compound walls—to improve safety.

► Use speed table crossings to reduce motor vehicle speeds.

► Create continuous, physically segregated cycle tracks when motor vehicle speeds are higher than 30 km/h.

cycle

Street design ensures safety for cyclists by reducing carriageway speeds or creating separate cycle tracks. A complete network, adequate shading elements, smooth surfaces, and secure cycle parking are essential.



Policy Encouraging Sustainable Mobility

- Offer **carpool** boards which allow pairing riders with drivers.
- **Shuttle buses** which may run on **biodiesel**.
- Maintain **efficient ground transport** through proper maintenance of vehicles, responsible driver behaviour, using quality fuels, installing emission control technologies and making use of advanced vehicles and fuels.
- Encourage **Non-Motorized Transport (NMT)**
- Providing **Green Transport Infrastructure**.

Guru Nanak Dev University, Amritsar



Vehicle free campus



A GREEN
TRANSPORT
POLICY



Under a car free campus policy, lane demarcation and circulation completed.

Guru Nanak Dev University, Amritsar



A GREEN
TRANSPORT
POLICY



Public Bike
Sharing



Battery
operated
vehicle

Battery operated ride hailing service
Facilitates intra-campus low-carbon mobility.

Shared Mobility



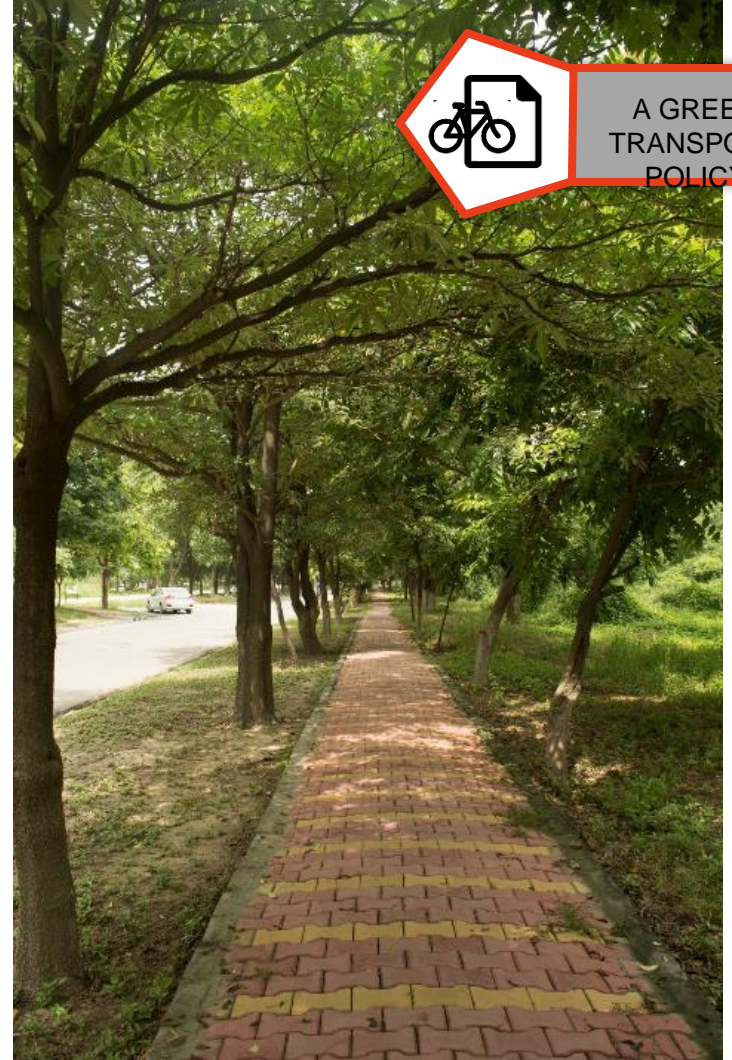
A GREEN
TRANSPORT
POLICY



Green Transportation Infrastructure



A GREEN
TRANSPORT
POLICY



Awareness Campaigns

St. Edmund's



Attention Edmundians

Calling all Cycle Enthusiasts of St. Edmund's to come and be a member of the newly introduced Cycling Unit of the Hurting Our World Eco-Club - a.k.a NOW Eco-Club, St. Edmund's College.

Queries:

- How to be a member of this Unit?
By joining the NOW Eco-Club, St. Edmund's College, Shilong.
- Who can join this Club?
All Students and Faculty Members of St. Edmund's College.
- Whom to contact?
1. Department of Environmental Science, St. Edmund's College.
2. Prof. L. Jeengaph, Secretary, NOW Eco-Club, St. Edmund's College (Mobile No. 9862212834)
3. Prof. D. Suchang, Cultural Organising Secretary, NOW Eco-Club, St. Edmund's College (Mobile No. 9856181294)
4. Prof. Barry Rymbai, Member, NOW Eco-Club, St. Edmund's College (Mobile No. 9436701452)
5. Registration forms are available at the Department of Environmental Science.
6. Registration and Membership Fees:
a. Registration Fee for Students : ₹ 250.00 (Rupees Two Hundred and Fifty only)
b. Registration Fee for Teachers : ₹ 500.00 (Rupees Five Hundred only)
c. Annual Membership Fee : ₹ 100.00 (Rupees One Hundred only)

Date of Launching -
26th August, 2017 (tentative)

Recycle to save the earth and cycle to save yourself.

St. Xavier's Bhubaneswar



ConXerv Committee for Sustainable...
#conXerv #XIMB #XSoS No Vehicle Day

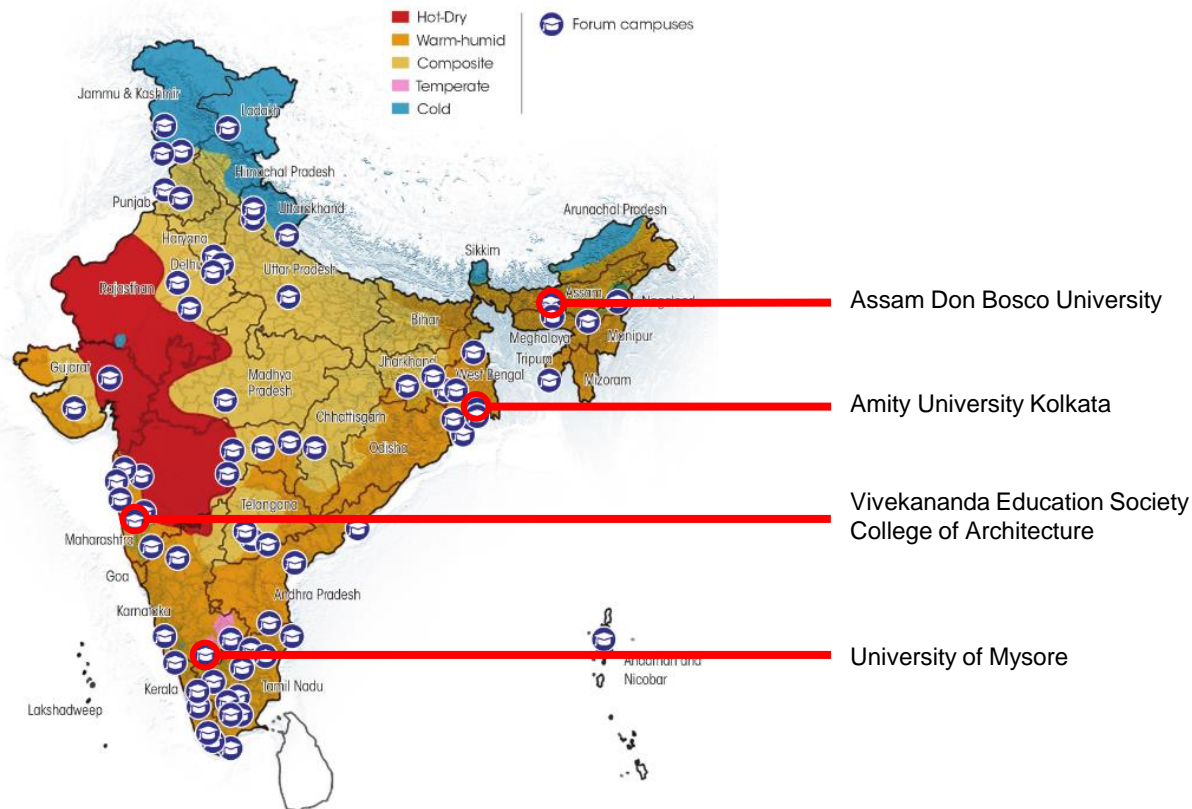


A GREEN
TRANSPORT
POLICY

To encourage students and staff to **switch to non-motorized transportation** or public **bike sharing**, etc.

FORUM OF CAMPUSES

FIRST 100 CAMPUSES FROM ALL CLIMATIC ZONES OF INDIA



ASSAM DON BOSCO UNIVERSITY



Location
GUWAHATI, ASSAM



Population
~1000 Students
289 Support staff and faculty



Residence campus
Students: Less than 20%
Faculty and support staff: More than 75%



Climatic zone
Warm-Humid



Predominant building height
3-5 storey



Area
274 acres

CAMPUS ACTION PLANS



LAND



ENERGY





















WATER



WASTE



AIR

AMITY UNIVERSITY KOLKATA



Location
Kolkata, West Bengal



Population
6500 Students
450 Support staff and faculty



Residence campus
Students: Less than 20%
Faculty and support staff: Less than 20%



Climatic zone
Warm-Humid



Predominant building height
Above 5 storey



Area
10 Acres



LAND



ENERGY



WATER











WASTE



AIR

CAMPUS ACTION PLANS

UNIVERSITY OF MYSORE



Location
MYSURU, Karnataka



Population
4500 Students
2500 Support staff and faculty



Residence campus
Students: 20-50%
Faculty and support staff: 20-50%



Climatic zone
Temperate



Predominant building height
1-2 storey



Area
717.98 acres / 29,05,469 sq. meters

CAMPUS ACTION PLANS



LAND



ENERGY




















WATER



WASTE



AIR


				
				
				
				
				

VIVEKANANDA EDUCATION SOCIETY COA



 **Location**
Mumbai, Maharashtra

 **Population**
6000 Students
1000 Support staff and faculty

 **Residence campus**
Students: Less than 20%
Faculty and support staff: Less than 20%

 **Climatic zone**
Warm-Humid

 **Predominant building height**
Above 5 storey

 **Area**
1.97 hectares

CAMPUS ACTION PLANS



LAND



ENERGY






WATER



WASTE



AIR



What will CSE's Forum of Green Campuses aim to achieve?

- Establish collective impact of network campuses in India
- Help develop case studies with granular information based on volume and scope of campuses, for cross learning
- Influence national repositories for comprehensiveness of data/information and performance indicators for campuses.