GCET
निर्मिति विश्वसुखाय

CVM UNIVERSITY

EXTRAMURAL TALK

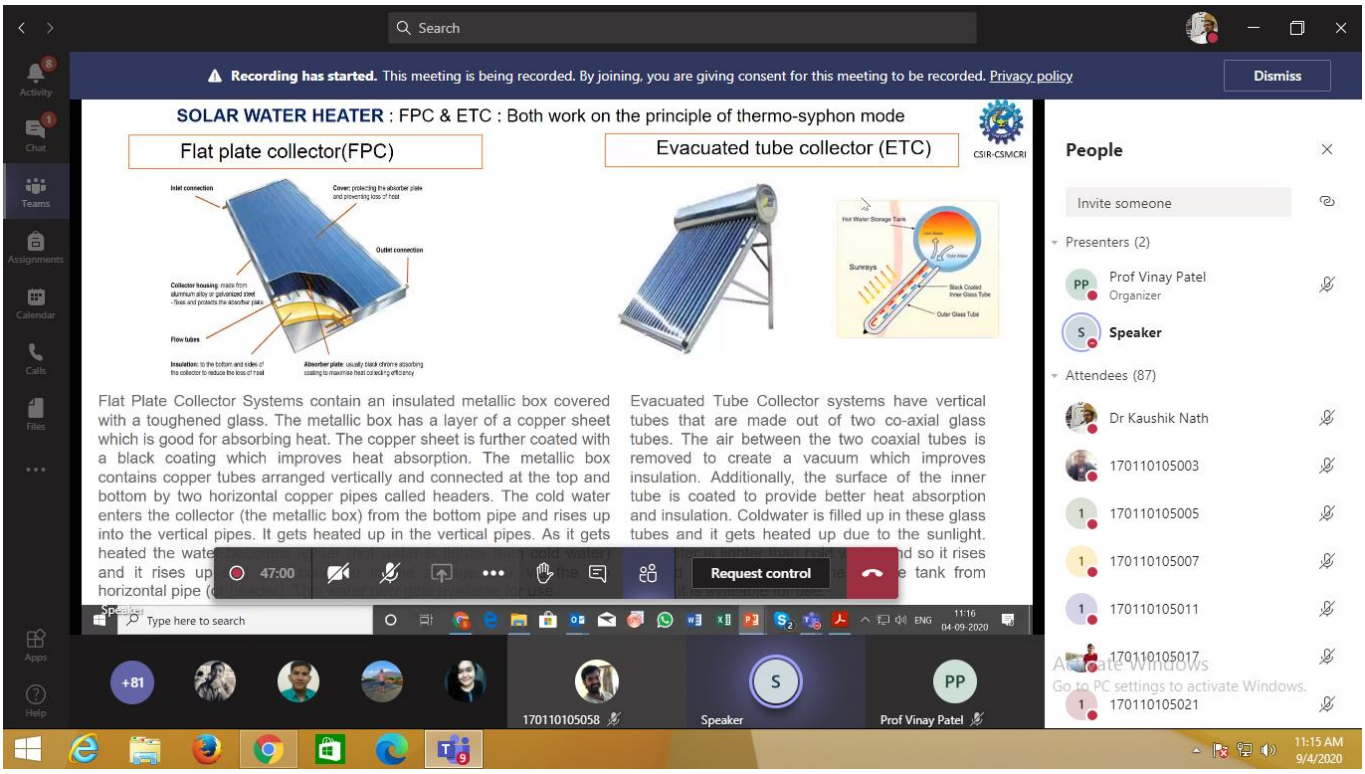
"Recent advances in renewable energy research"

By Dr.Subarna Maiti,
Principal Scientist,
CSMCRI- Central Salt & Marine Chemicals Research Institute,
Bhavnagar.

PLATFORM : MS TEAMS

SEPTEMBER 4, 11:00 AM TO 11:45 AM

G H Patel College of Engineering & Technology
(A Constituent College of CVM University)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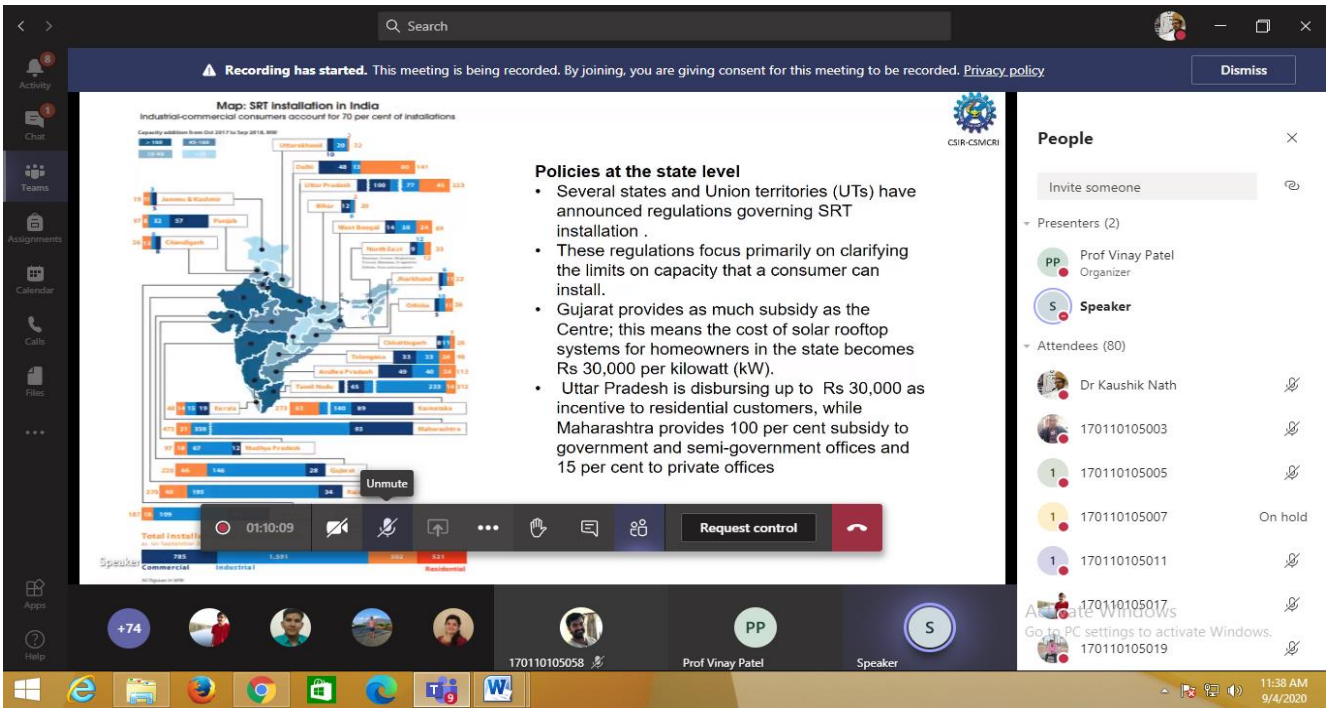
SOLAR WATER HEATER : FPC & ETC : Both work on the principle of thermo-syphon mode
Flat plate collector(FPC)
Evacuated tube collector (ETC)
CSIR-CSMCRI
Flat Plate Collector Systems contain an insulated metallic box covered with a toughened glass. The metallic box has a layer of a copper sheet which is good for absorbing heat. The copper sheet is further coated with a black coating which improves heat absorption. The metallic box contains copper tubes arranged vertically and connected at the top and bottom by two horizontal copper pipes called headers. The cold water enters the collector (the metallic box) from the bottom pipe and rises up into the vertical pipes. It gets heated up in the vertical pipes. As it gets heated the wate
and it rises up
horizontal pipe (
Evacuated Tube Collector systems have vertical tubes that are made out of two co-axial glass tubes. The air between the two coaxial tubes is removed to create a vacuum which improves insulation. Additionally, the surface of the inner tube is coated to provide better heat absorption and insulation. Coldwater is filled up in these glass tubes and it gets heated up due to the sunlight.
d so it rises
e tank from
47:00
Request control
People
Invite someone
Presenters (2)
Prof Vinay Patel
Organizer
Speaker
Attendees (87)
Dr Kaushik Nath
170110105003
170110105005
170110105007
170110105011
170110105017
170110105021
+81
170110105058
Speaker
Prof Vinay Patel
11:15 AM
9/4/2020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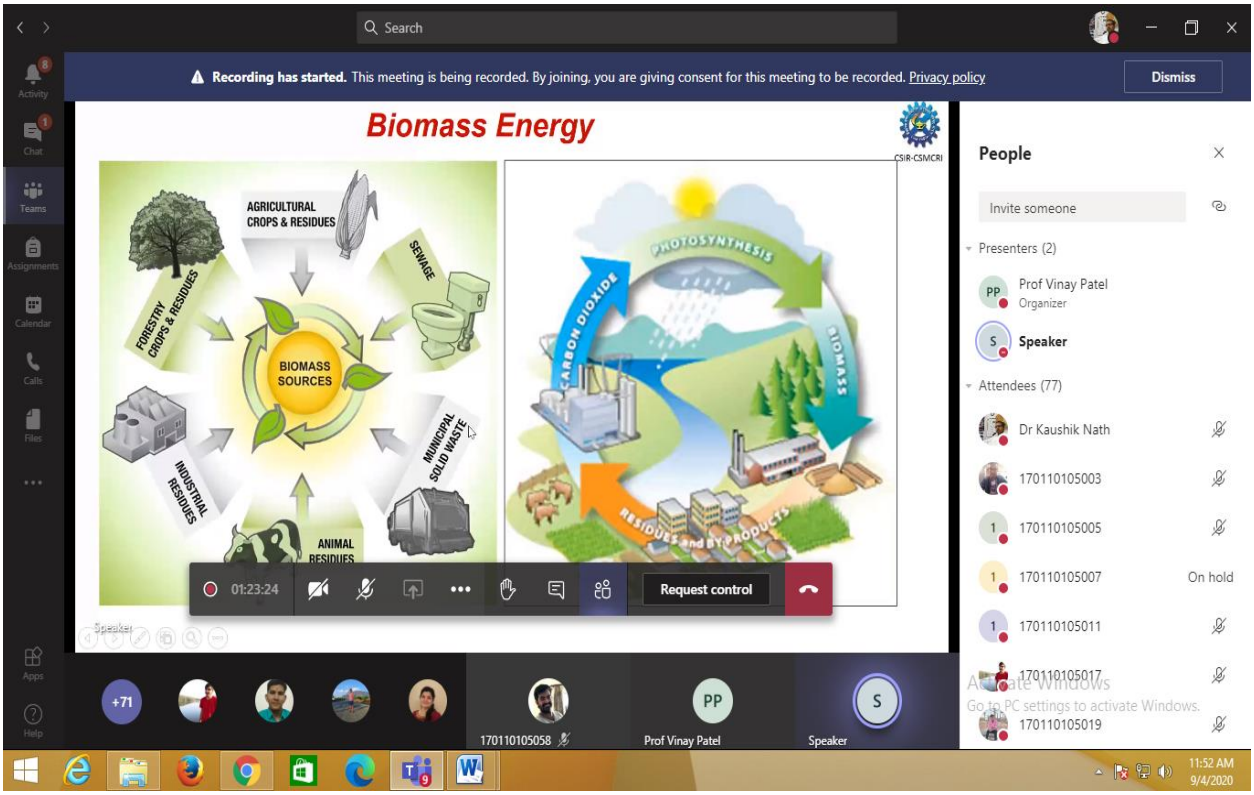
Map: SRT installation in India
Industrial-commercial consumers account for 70 per cent of installations
CSIR-CSMCRI
Policies at the state level
Several states and Union territories (UTs) have announced regulations governing SRT installation .
These regulations focus primarily on clarifying the limits on capacity that a consumer can install.
Gujarat provides as much subsidy as the Centre; this means the cost of solar rooftop systems for homeowners in the state becomes Rs 30,000 per kilowatt (kW).
Uttar Pradesh is disbursing up to Rs 30,000 as incentive to residential customers, while Maharashtra provides 100 per cent subsidy to government and semi-government offices and 15 per cent to private offices
Unmute
01:10:09
Request control
People
Invite someone
Presenters (2)
Prof Vinay Patel
Organizer
Speaker
Attendees (80)
Dr Kaushik Nath
170110105003
170110105005
170110105007
On hold
170110105011
170110105017
170110105019
+74
170110105058
Prof Vinay Patel
Speaker
11:38 AM
9/4/2020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Biomass Energy
CSIR-CSMCRI
AGRICULTURAL CROPS & RESIDUES
SEWAGE
FORESTRY CROPS & RESIDUES
BIOMASS SOURCES
MUNICIPAL SOLID WASTE
INDUSTRIAL RESIDUES
ANIMAL RESIDUES
PHOTOSYNTHESIS
CARBON DIOXIDE
BIOMASS
RESIDUES and BY-PRODUCTS
01:23:24
Request control
People
Invite someone
Presenters (2)
Prof Vinay Patel
Organizer
Speaker
Attendees (77)
Dr Kaushik Nath
170110105003
170110105005
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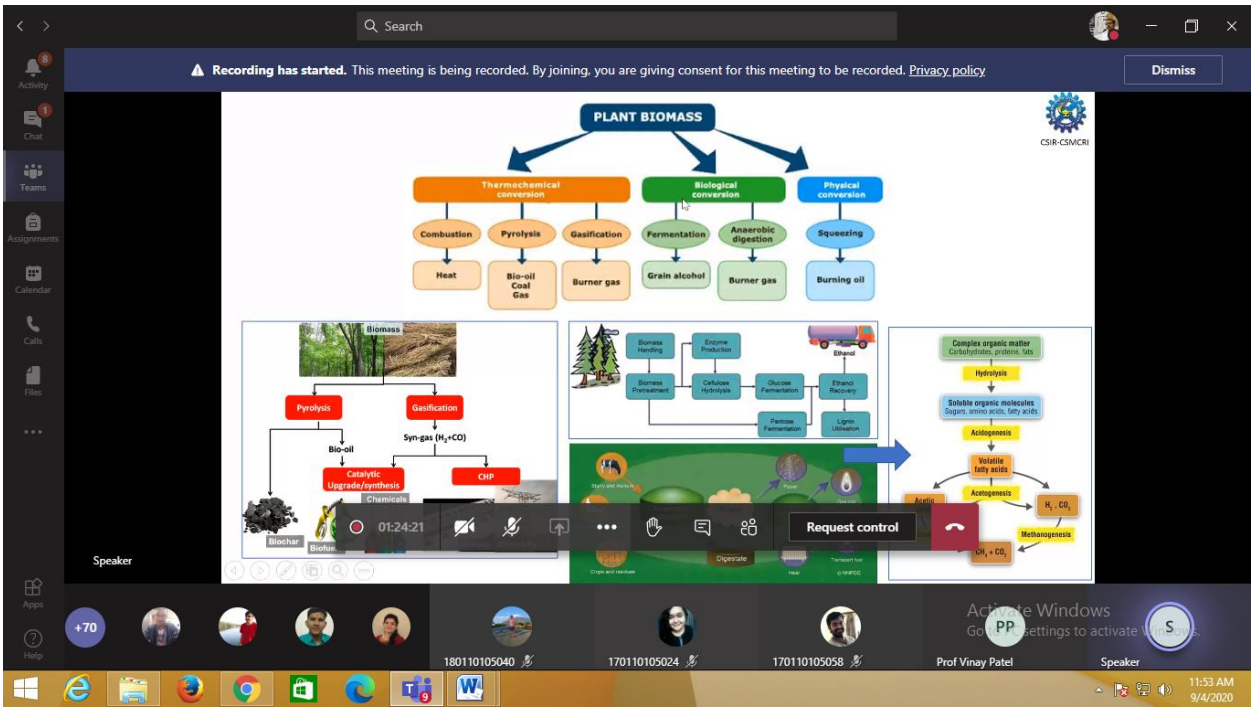
On hold
170110105011
170110105017
170110105019
+71
170110105058
Prof Vinay Patel
Speaker
11:52 AM
9/4/2020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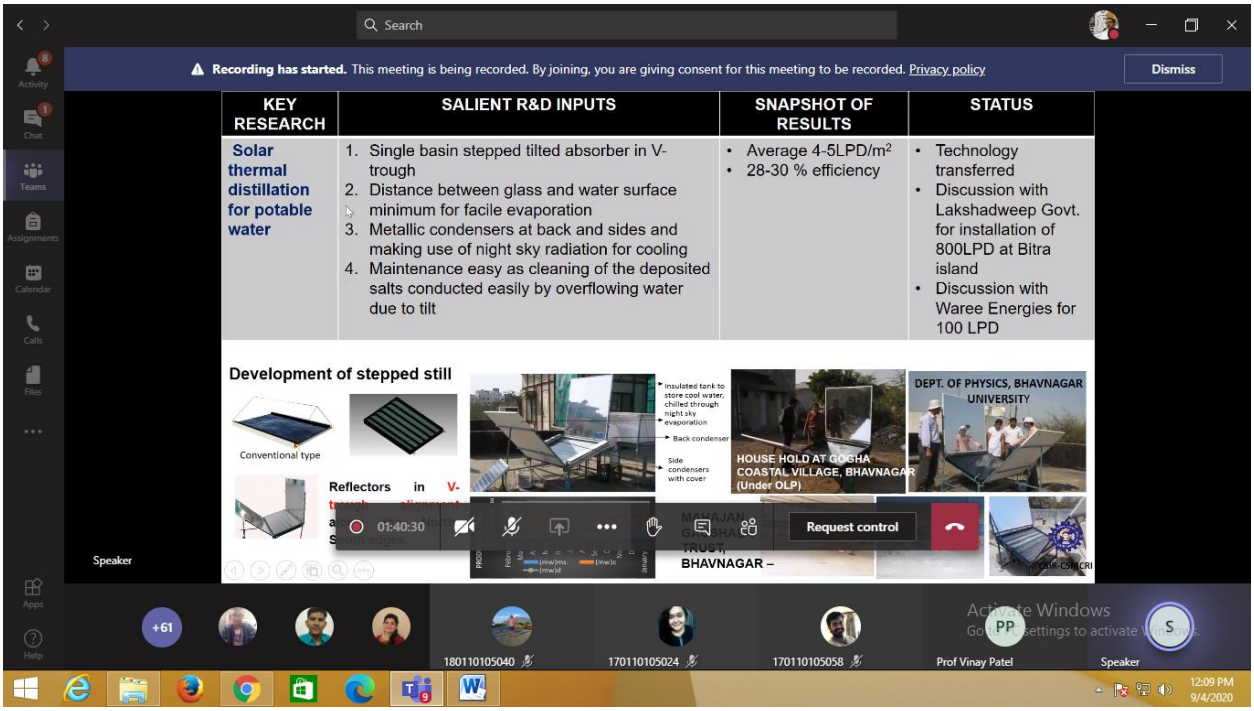
PLANT BIOMASS
Thermochemical conversion
Biological conversion
Physical conversion
Combustion
Pyrolysis
Gasification
Fermentation
Anaerobic digestion
Squeezing
Heat
Bio-oil Coal Gas
Burner gas
Grain alcohol
Burner gas
Burning oil
Biomass
Pyrolysis
Gasification
Syn-gas (H2+CO)
Bio-oil
Catalytic Upgrade/synthesis
CHP
Chemicals
Biochar
Complex organic matter
Hydrolysis
Soluble organic molecules
Acidogenesis
Volatile fatty acids
Acetogenesis
Methanogenesis
01:24:21
Request control
Speaker
+70
180110105040
170110105024
170110105058
Prof Vinay Patel
Speaker
11:53 AM
9/4/2020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KEY RESEARCH
SALIENT R&D INPUTS
SNAPSHOT OF RESULTS
STATUS
Solar thermal distillation for potable water
1. Single basin stepped tilted absorber in V-trough
2. Distance between glass and water surface minimum for facile evaporation
3. Metallic condensers at back and sides and making use of night sky radiation for cooling
4. Maintenance easy as cleaning of the deposited salts conducted easily by overflowing water due to tilt
• Average 4-5LPD/m²
• 28-30 % efficiency
• Technology transferred
• Discussion with Lakshadweep Govt. for installation of 800LPD at Bitra island
• Discussion with Waree Energies for 100 LPD
Development of stepped still
Conventional type
Insulated tank to store cool water, chilled through night sky evaporation
Back condenser
Side condensers with cover
HOUSE HOLD AT GOGHA COASTAL VILLAGE, BHAVNAGAR (Under OLP)
DEPT. OF PHYSICS, BHAVNAGAR UNIVERSITY
Reflectors in V-
BHAVNAGAR –
01:40:30
Request control
Speaker
+61
180110105040
170110105024
170110105058
Prof Vinay Patel
Speaker
Activate Windows
12:09 PM
9/4/2020