





futureearth
Research. Innovation. Sustainability.



Glacier
Mass of ice formed from accumulated snow.

Glaciers in Himalaya

Changing Climate

Measurements from field and space

Global distribution of glaciers

Glacier

Glaciers in Himalaya

Changing Climate

Measurements from field and space

Himalayan Glaciers
Divyaja Centre for Climate Change, Indian Institute of Science, Bangalore, India

Glaciers in Himalaya

Changing Climate

Measurements from field and space





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Sustainability

INGREDIENTS

WATER CONSUMPTION

PALM OIL

A study related to the preparation of palm oil for use in processed foods linked the oil to potentially cancer-causing...

...oil may not just ... of fresh

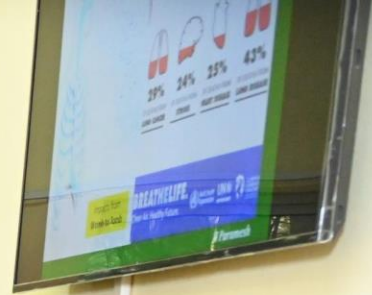
SUGAR

- 1. It can cause weight gain and obesity.
- 2. May increase risk of heart disease.
- 3. Increases your risk of Type 2 Diabetes.
- 4. May increase risk of cancer.
- 5. May increase risk of depression.
- 6. May accelerate skin ageing process.
- 7. Can increase cellular ageing.
- 8. Can lead to fatty liver disease.
- 9. Increases kidney disease risk.
- 10. Negatively impacts dental health.
- 11. High sugar diet accelerates cognitive decline.
- 12. Increases digestive issues.
- 13. It is harmful to the gut.
- 14. May weaken immunity.
- 15. It is low in nutrition.

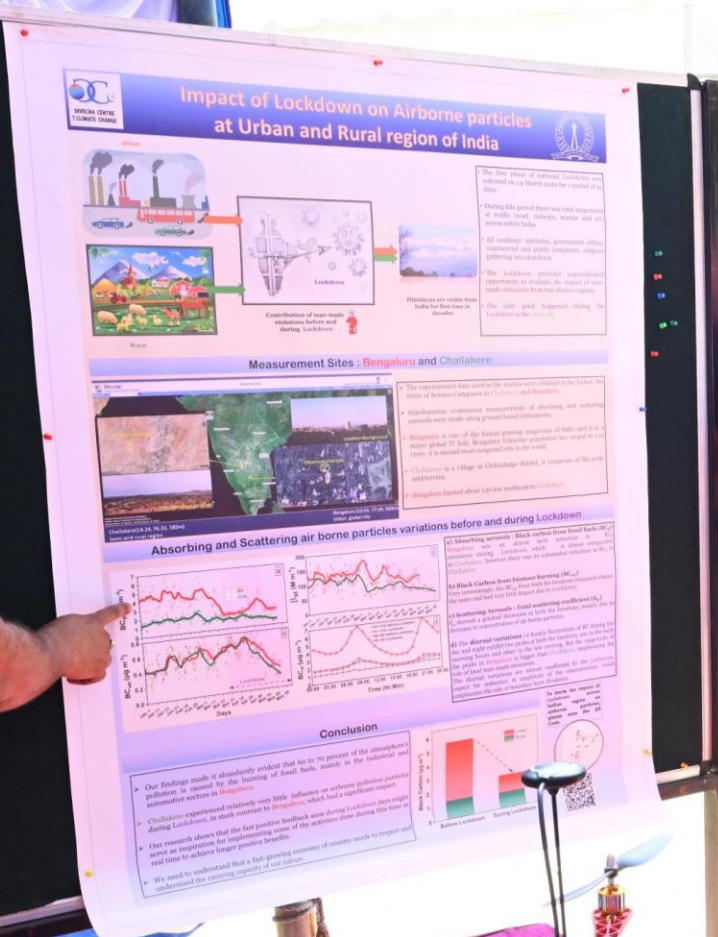
THINK OF

- 1. Jaggery
- 2. Rock Sugar
- 3. Brown Sugar
- 4. Date Sugar
- 5. Honey
- 6. Raisins









THERMAL COMFORT: HUMID HEAT V/S DRY HEAT

Humid Heat Stress: Combined effect of high temperature and humidity on human comfort and health

Air Temp: 36°C
Skin Temp: 38°C

Moist air = reduced sweat evaporation

Harder for the body to cool down

Uncomfortable and Deadlier



Heat transfer from high to low temperature

Ambient dry-bulb temperature +35°C skin temperature. Heat loss only by sweat evaporation



CLIMATE CHANGE HURTS HEALTH

HOW TO PROTECT YOURSELF FROM HEATWAVES

KEEP YOUR SKIN COOL







In case of fire
DO NOT use lift
Use the stairs

DO NOT
LITTER

Influence of Climate Change on Lightning

Rishi Chakrabarty, INSPIRE Faculty, IITC, BK

Lightning is a natural phenomenon that occurs during thunderstorms. It is caused by the discharge of electrical energy between clouds or between clouds and the ground. Climate change is expected to increase the frequency and intensity of lightning strikes.

Warmer temperatures lead to more evaporation, which increases the amount of moisture in the atmosphere. This moisture is then carried by winds to other parts of the world, where it can form clouds and rain. Warmer temperatures also lead to more frequent and intense storms, which can produce more lightning.

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OPEN DAY 2024
How to create lightning effortlessly
Rishi Chakrabarty (INSPIRE Faculty DCCU)
Rishu Girda (IS Research)

ANTIF









Microbes are necessary for food products

CHEESE
Microbes are necessary for food products

Opening the Gate



S. A. PANDIT

SURFACE WATER

land lakes in addition to irrigation can serve as drinking water sources.

Criteria for the selection of inland lake for supplying drinking water

Criteria for the selection of inland lake for supplying drinking water are classified based on 1) Perennialism, 2) Quantity of water available (for drinking and irrigation), 3) Nature of the catchment area adjacent to the lake, 4) Physical, chemical and biological quality of the water.

MNDWI Plot for the Reddykere Tank from LANDSAT 8 Surface Reflectance Data

Physical, chemical and biological quality of the water.

Colour	Total Alkalinity	Arsenic
5 Hz unit	200 mg/L	0.01 mg/l
Odour	Total Hardness	Chromium
Agreeable		0.05 mg/l

cfu/100 ml; Salmonella; aureus/25ml; coliforms/25ml; Yeast and fungi detected

Roof water Harvesting

- Area of rooftops are estimated from satellite imageries and ground truthing carried out.
- A survey of the population of the village and estimation of minimum water requirement for drinking purposes calculated assuming minimum requirement per head as 5 - 7 L per day per WHO recommendation.
- Data on minimum, average and maximum annual rainfall in an area is collected from meteorological database for at least last three decades.
- Rainwater that can be harvested from the roofs is calculated using the above data.
- Whether minimum rainfall can produce enough roof water to meet the requirement of a given village is verified.
- Engineering design for harvesting the roof water, purifying, storing and distributing is carried out.

Population

Total number of houses in village	430
Adult	2077
Children	228
Total	2305

Rooftop area (m²)

Area estimated by satellite imagery	10237
Area measured	7560
Minimum	492
Maximum	896
Average	694

Rainfall (mm/yr)

Volume of Rainwater that can be harvested (in litres) corrected for 10% loss during collection	Average	4532862	3719717
	@ minimum 492 mm/yr	8254968	6774118
	@ maximum 896 mm/yr	6393915	5246918
	@ average 694 mm/yr	4206625	4699375

Water demand for year (L)

@ 5 L/day/person	589275	6579125
@ 7 L/day/person	Adequate with average and maximum rainfall	Adequate with maximum rainfall
Adequacy @ 7 L/day/person	Inadequate with minimum rainfall	Inadequate with minimum and average rainfall
Adequacy @ 5 L/day/person	Adequate with minimum and average rainfall	Inadequate

Calculation of quantity of water required for drinking purposes assuming minimum annual rainfall

Three men are engaged in a discussion. One man on the left, wearing a light blue checkered shirt, is gesturing with his hand while speaking. Two other men, one in a blue shirt and glasses and another in a white shirt, are listening attentively. They are standing in front of a display board.

Two men in green uniforms are looking at the display board. One man is wearing a blue cap and glasses, and the other is wearing a green polo shirt with a logo. They appear to be in a professional or educational setting, possibly a laboratory or a training center.

