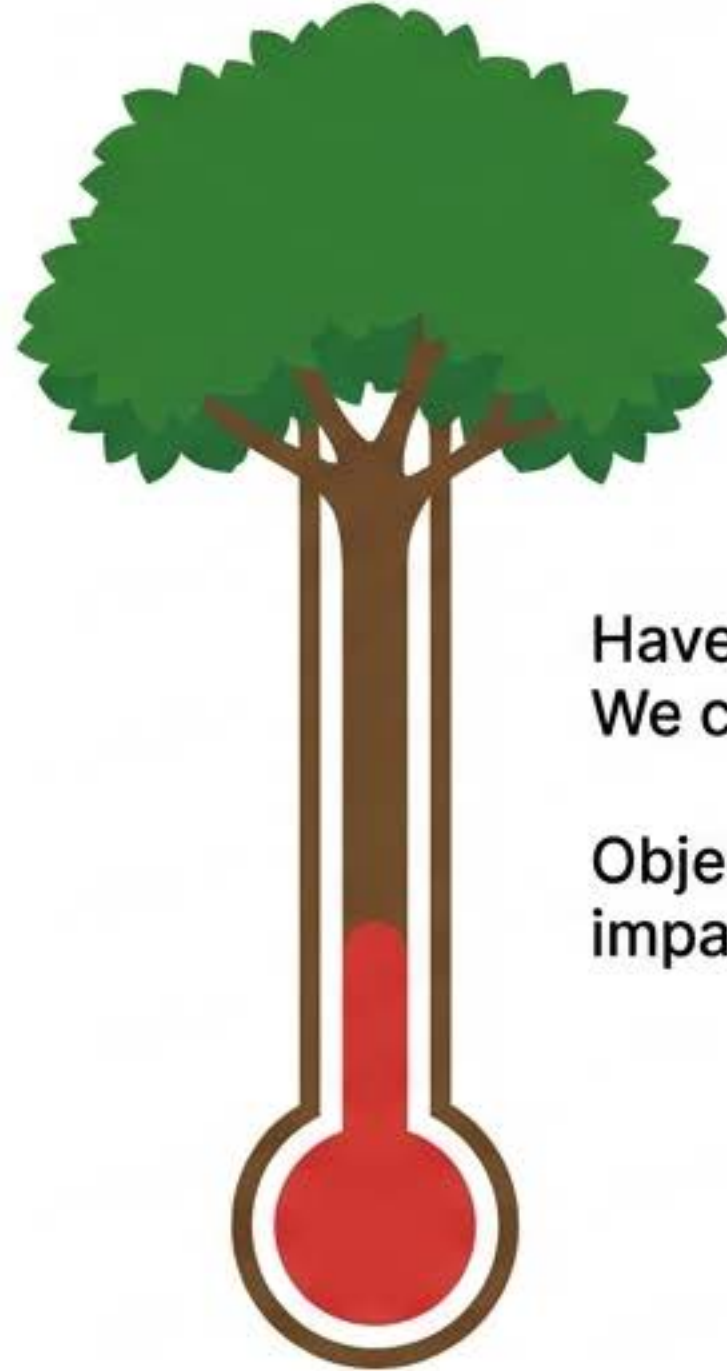




THE GREEN THERMOMETER

Measuring the Cooling Power of Trees

NOT AN ORDINARY THERMOMETER.



Have you ever imagined a tree as technology?
We call it a Green Thermometer.

Objective: To investigate nature's measurable
impact on heat.

THE PROBLEM: URBAN HEAT ISLANDS

Sealed Surfaces: Asphalt and concrete absorb and trap solar radiation.

The Consequence: Extreme temperatures in school environments.

The Feeling: High thermal discomfort.

Urbanization intensifies land surface sealing.

THE HYPOTHESIS

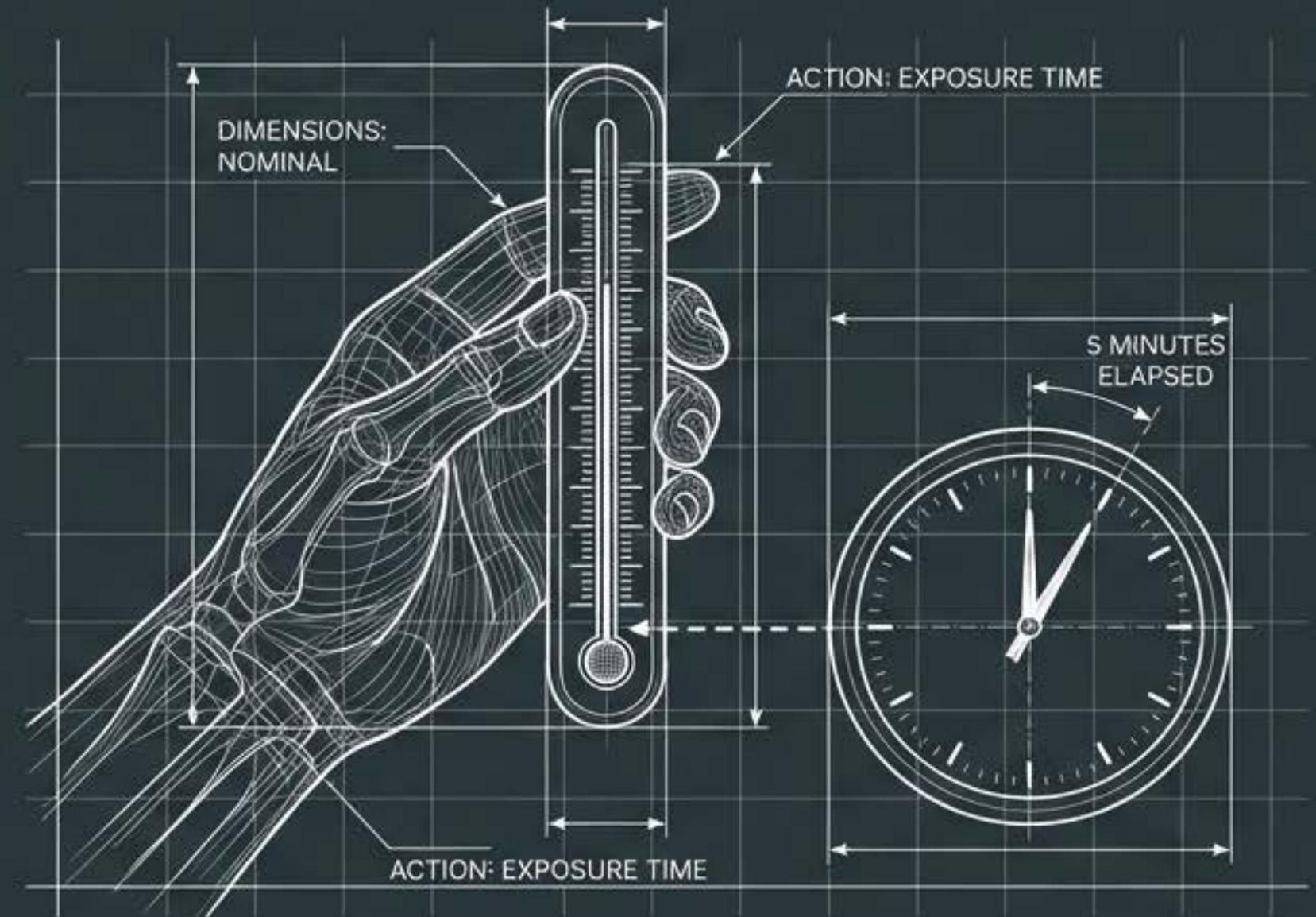
- **Can trees influence local air temperature?**
- **Can vegetation create a pleasant microclimate?**
- **Goal: Prove that nature acts as an active cooling agent.**



METHODOLOGY: GLOBE PROGRAM

Standardized Atmosphere Protocol

1. **Tool:** Calibrated Thermometers.
2. **Duration:** 5 Minutes of exposure per measurement.
3. **Action:** Simultaneous data collection.
4. **Technique:** Quantitative and descriptive analysis.





LOCATION A
EXPOSED AREA

School courtyard without
vegetation cover.

VS



LOCATION B
SHADED AREA

Under the tree canopy.

THE MECHANISM: EVAPOTRANSPIRATION



Trees 'sweat'
just like humans.

Leaves release
humidity into
the dry air.

The Effect:
A natural air
conditioner.

It is not just shade; it is active biological cooling

THE FINDINGS

HOTTER

Without Vegetation: Consistently higher surface and air temperatures.

MILDER

With Vegetation: Significant reduction in heat.

Conclusion: Trees effectively regulate local microclimates.

THERMAL COMFORT

- Vegetation mitigates heat stress.
- Shade improves physical well-being.
- Essential for community health and school environments.



CITIZEN SCIENCE IN ACTION

Students as active researchers.

Real-world data collection using GLOBE protocols.

Bridging the gap between environmental monitoring and education.

“Science is everywhere.”



NATURE IS ESSENTIAL

Trees are critical urban infrastructure.
We need evidence-based green planning.
Adaptation to climate change starts with local planting.

THE RESEARCH TEAM

IERN (State Institute of Professional Education, Technology and Innovation of Rio Grande do Norte)

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PLANT TREES. COOL THE WORLD.

Support urban vegetation for a better climate.