

MEER Media Backgrounder

Organisation Overview

Organisation: MEER (Mirrors for Earth's Energy Rebalancing)

Founded: 2021

Founder: Dr. Ye Tao

Headquarters: United States and Japan

Global Operations: Africa, Asia, Europe and North America

Legal Status: United States 501(c)(3) nonprofit organisation

Fiscal Sponsorship: MEER is fiscally sponsored by Social and Environmental Entrepreneurs (SEE), California, USA, and the International House of Japan (IHJ), Tokyo, Japan.

About MEER

MEER (Mirrors for Earth's Energy Rebalancing) is an international nonprofit organisation dedicated to developing practical, scientifically grounded solutions to one of humanity's greatest challenges: rising temperatures.

Founded in 2021 by scientist and engineer Dr. Ye Tao, MEER brings together researchers, engineers, architects, designers, environmental specialists and community practitioners from around the world to design, test and deploy passive cooling technologies capable of protecting vulnerable communities from extreme heat while contributing to the restoration of Earth's energy balance.

Unlike many climate interventions that may require decades to deliver meaningful benefits, MEER focuses on technologies capable of providing immediate reductions in heat exposure while supporting long-term climate resilience. Every solution is designed to be environmentally responsible, economically viable and scalable across both developed and developing regions.

The organisation works closely with governments, universities, scientific institutions, nonprofits and local communities to ensure its technologies are rigorously tested, practical to deploy and responsive to local needs.

Our Mission

MEER's mission is to design, develop and deploy safe, scalable and equitable cooling systems that reduce both local and global temperatures, helping communities adapt to rising heat while contributing to the long-term restoration of Earth's energy balance.

Our Approach

MEER's work is built around the principle of **adaptive mitigation**—an approach that combines climate adaptation with climate mitigation.

Rather than treating these as separate challenges, adaptive mitigation recognises that carefully designed passive cooling systems can simultaneously reduce dangerous heat exposure today while helping to lower the amount of solar energy absorbed by Earth's surface over the longer term.

MEER develops reflective technologies for buildings, public spaces, agricultural landscapes and water bodies that provide immediate benefits for people living with extreme heat while supporting broader efforts to address planetary warming.

The organisation places particular emphasis on solutions that are affordable, environmentally sustainable and capable of being manufactured using locally available materials wherever possible.

Research and Technology

MEER develops passive surface cooling technologies designed to operate without external energy inputs.

Current areas of research include:

- Reflective roofing systems.
- Community cooling canopies.
- Reservoir and water surface cooling technologies.
- Agricultural cooling systems.

- Sustainable reflective materials.
- Climate monitoring and environmental modelling.
- Heat-health research.
- Community-led deployment systems.

One of MEER's principal areas of research is the development of bamboo-PET composite technologies, combining rapidly renewable bamboo—a significant natural carbon sink—with highly reflective PET materials. These systems are designed to reduce heat exposure, lower lifecycle costs and maximise long-term environmental sustainability.

Global Programmes

MEER currently undertakes research, demonstration projects and collaborative programmes across several regions of the world.

These include:

- Urban cooling projects.
- School cooling programmes.
- Community-based heat resilience initiatives.
- Agricultural cooling demonstrations.
- Water body cooling research.
- Climate-health monitoring studies.
- Materials research and engineering development.
- Scientific modelling and validation.

Every project is developed alongside local partners to ensure technologies are appropriate for local environmental, economic and cultural conditions.

Key Achievements

MEER has successfully demonstrated measurable passive cooling under real-world conditions through projects conducted in Sierra Leone and India.

Key achievements include:

- Indoor temperature reductions of up to **7°C** in occupied buildings.

- Roof surface temperature reductions significantly greater than indoor cooling, demonstrating substantial reductions in solar heat absorption.
 - Development of scalable bamboo-PET composite systems capable of reducing lifecycle costs by approximately **50–67%** compared with many conventional construction approaches.
 - Community-led fabrication, installation and maintenance programmes that create local employment while building long-term technical capacity.
 - Establishment of international collaborations involving scientists, universities, government agencies, nonprofit organisations and community partners across multiple continents.
-

Our Vision

MEER believes that passive cooling technologies can become an essential part of humanity's response to climate change.

The organisation envisions a future in which reflective surface technologies are widely deployed across cities, rural communities, agricultural landscapes and water systems, reducing dangerous heat exposure while helping restore Earth's energy balance.

By combining scientific excellence, engineering innovation, environmental responsibility and strong community partnerships, MEER aims to demonstrate that practical cooling solutions can improve public health, strengthen food and water security, reduce energy demand and contribute meaningfully to global climate resilience.

About Dr. Ye Tao

Founder and Chief Scientist

Dr. Ye Tao is a scientist, engineer and inventor whose work focuses on developing practical technologies to restore Earth's energy balance through passive surface cooling.

He founded MEER in 2021 after recognising the urgent need for complementary climate solutions capable of reducing temperatures on timescales far shorter than emissions reductions alone can achieve.

Dr. Tao received his Ph.D. in Chemistry from the Massachusetts Institute of Technology (MIT) in 2015. Prior to this, he completed the research requirements for a doctorate in Physics at ETH Zurich before joining the Rowland Institute at Harvard University, where he led an independent research group.

His research combines chemistry, physics, materials science, engineering and climate science to develop reflective systems capable of safely returning a portion of incoming solar radiation back into space through surface-based technologies.

Under Dr. Tao's leadership, MEER has grown into an international organisation working across Africa, Asia, Europe and North America with governments, universities, engineers and local communities to develop scalable, environmentally responsible cooling systems for a warming world.

His vision is to ensure that every community—regardless of income or geography—has access to affordable technologies that reduce heat exposure while contributing to the long-term restoration of Earth's climate system.

Media Enquiries

MEER (Mirrors for Earth's Energy Rebalancing)

Headquarters: United States and Japan

info@meer.org

Website: www.meer.org

For media enquiries, interviews, technical briefings, project information, photography or broadcast requests, please contact the MEER communications team through the website.
