Solar cooking: A transformative approach to advancing the SDGs

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Photo credit: Julie Greene

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Main Representative of Solar Cookers International to the United Nations

Presentation is part of the Proceedings of Side Event of UN HLPF 2020
http://www.inforse.org/INFORSE_at_HLPF2020.php and
https://sustainabledevelopment.un.org/index.php?page=view&type=20000&nr=7102&menu=2993

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What is a solar cooker?

A device that collects and absorbs direct sunlight and retains heat to cook food or pasteurize water.

How does a solar cooker work?

Collect light

Absorb light

Retain heat

Easy and Efficient

Safe and Sustainable

Photo credit: Sperancea Gabone

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Types of Solar Cookers

Photo credits: Alan Bigelow, Ph.D.

Transformative Approach:

- Solar-thermal cooking
- Hundreds of variations on these basic types
- Institutional solar cookers cook >10,000 meals per day

Complementary technologies:

- Retained-heat basket
- Water pasteurization indicator (WAPI)

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Why solar cooking?

- Zero fuel cost
- Zero air pollution
- Zero greenhouse gas emission
- Zero inhalation of smoke
- Zero time (or danger) from collecting biomass fuel
- Reduces deforestation
- Can cook nutritious meals
- Can be used for drying food
- Can pasteurize water
- Great for mitigation and adaption
- Affordable and accessible
- Requires no infrastructure; quick implementation; “The people’s solution”

Photo credit: Ecomandate

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Solar Cookers International supports the SDGs

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SUSTAINABLE DEVELOPMENT GOALS

1 NO POVERTY

Energy costs proportionately more for vulnerable people. Access to free, no-emission solar thermal energy for cooking help end poverty.

2 ZERO HUNGER

With free solar thermal energy for cooking, families can cook all quantities and types of traditional and highly nutritious foods.

3 GOOD HEALTH AND WELL-BEING

Solar thermal cookers do not produce flames, so exposure to household air pollution – the number one cause of disease – and burn risk is greatly reduced, particularly for women and children.

4 QUALITY EDUCATION

Solar cooking can free vulnerable people from the time-intensive tasks of gathering biomass fuel for cooking fires and allow time for education and study.

5 GENDER EQUALITY

Solar Cooking reduces women's and children's exposure to violence when gathering biomass fuels and can return up to 5 hours/day for education, empowering them for leadership roles.

6 CLEAN WATER AND SANITATION

Solar thermal cookers can make water safe to drink, addressing water scarcity and reducing diarrheal disease.

7 AFFORDABLE AND CLEAN ENERGY

Solar thermal energy is clean, efficient, and sustainable. It does not need to be gathered or purchased and is available in all regions on all continents.

8 DECENT WORK AND ECONOMIC GROWTH

Cooking with free solar energy reduces household fuel costs and helps break the cycle of energy poverty.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Solar cookers reduce the need for centralized energy infrastructure and increase resilience and can be made using local materials.

10 REDUCED INEQUALITIES

Free solar energy is accessible to all people, irrespective of age, sex, gender, disability, ethnicity, origin, religion, or economic or other status.

11 SUSTAINABLE CITIES AND COMMUNITIES

Solar energy can be used in urban settings where biomass fuels are less available and can reduce competition and conflict for energy.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Free solar-thermal energy reduces environmental costs of fuel production and delivery. Solar energy is renewable and contributes to sustainable patterns of household energy use.

13 CLIMATE ACTION

Solar cooking reduces climate-change forcing agents, such as greenhouse gases and black carbon produced by combustion.

14 LIFE BELOW WATER

Solar cooking can preserve forests and soils, which, through carbon sequestration and water retention helps protect oceans from excess carbon absorption and pollution run-off.

15 LIFE ON LAND

Cooking and pasteurizing water with solar energy preserves forests, and curbs land degradation and desertification.

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Access to solar energy achieves our human right to cooked food and safe water. Solar energy reduces human conflict over scarce fuels.

17 PARTNERSHIPS FOR THE GOALS

Solar cooking technologies strengthen and empower community members, particularly women, to be change agents for sustainable development.

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Summer 2020 Newsletter

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10 Reasons Solar Cooking is Essential During a Global Health Crisis (and Beyond)

1 **Solar cooking reduces exposure to smoke from firewood and charcoal used for cooking and hence reduces respiratory strain and the risk of respiratory illness.** Approximately one million people die from pneumonia from cooking fires every year. People with respiratory illness are considered high risk for contracting COVID-19.

2 **Solar cooking reduces the risk of exposure to and spread of disease because it reduces the need to leave homes to gather or barter for cooking fuel.** For example, solar cookers are already in the hands of many of the refugee families in Kakuma Refugee Camp, Kenya, thanks to SCI supporters, reducing the need to get additional cooking fuel.

3 **Solar cooking increases energy independence.** With a solar cooker, people can cook with less dependence on supply chains, utility companies, or having an income. Free solar energy is delivered right to everyone's home every sunny day.

4 **Solar Cookers International connects global leaders committed to health and safety solutions.** Because of SCI's commitment to advocacy, research, and strengthening capacity, SCI supporters empower a strong global network and provide many resources online, accessible anytime. For example, read about the Solar Cookers International Toolkit on page 3.

5 **Solar cooking reduces environmental impact, saving lives.** Reports such as The New York Times article ***"New Research Links Air Pollution to Higher Coronavirus Death Rates"*** (https://nyti.ms/2UROU3Y) suggest a correlation between levels of air pollution and deaths from complications due to COVID-19. Using clean, sustainable solar cooking solutions for cooking food and pasteurizing water reduces air pollution attributed to cooking with firewood or charcoal.

6 **Solar cooking is accessible at home.** With more people at home during the day, taking precautions such as sheltering-in-place, solar cooking is a very easy way to prepare meals while still performing essential work tasks.

7 **Solar cooking technology is used for solar drying and increases food security by preserving food.** Learn more at http://solarcooking.org/dry

8 **Solar cookers are easy to construct with items you may already have in your home.** See how to construct a solar cooker here: http://solarcooking.org/make

9 **Solar cooking can pasteurize water and kill bacteria and viruses.** Solar cookers can be used during emergencies when other resources like fresh water and power sources might not be available. This also reduces co-morbidity by reducing the number of diseases (waterborne and airborne) that a person's immune system might need to fight at once.

10 **Your support can help scale solar cooking which can diminish the impact of the current global health crises and build future resiliency.**

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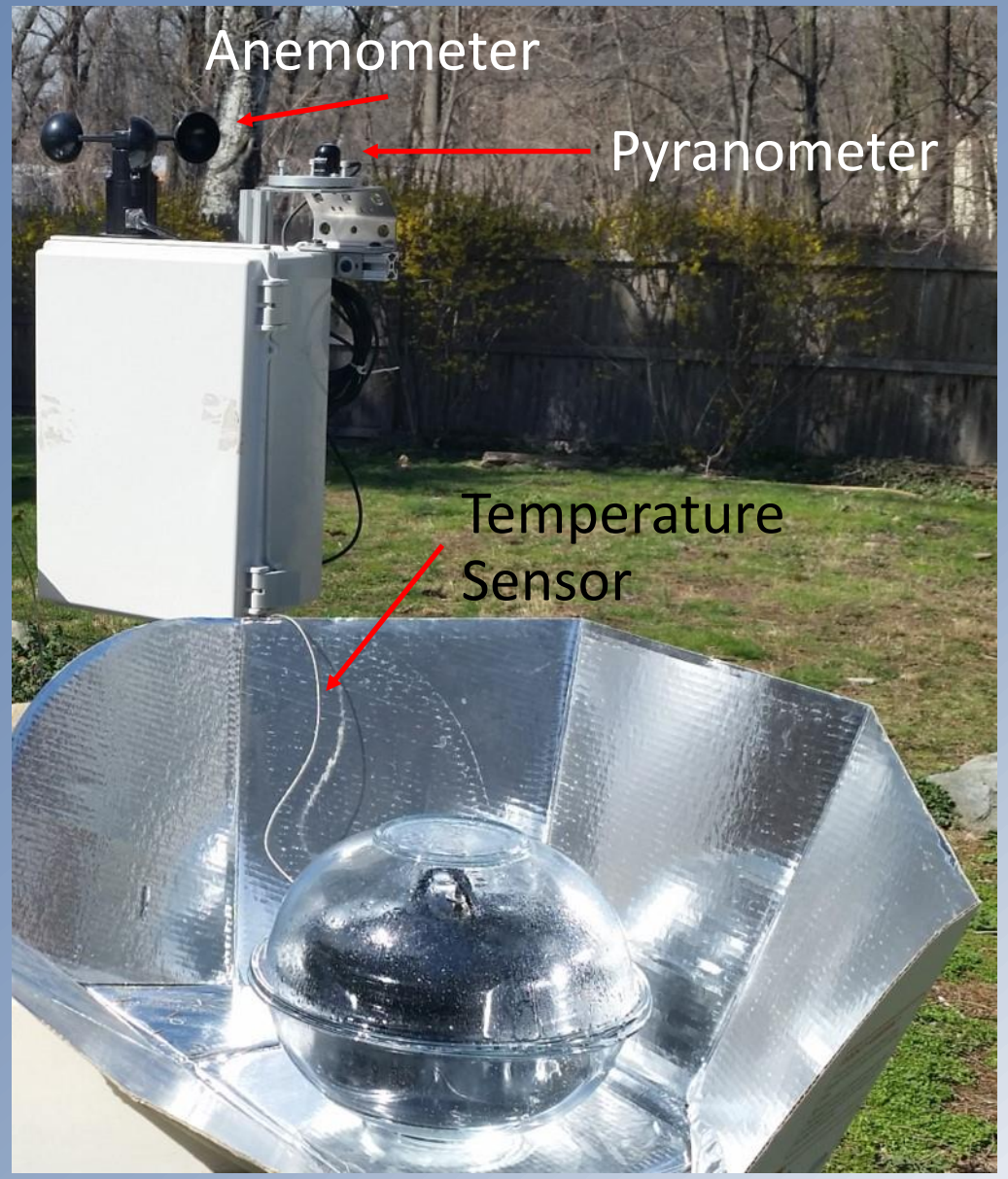
Performance Evaluation Process (PEP)

- Harmonizes with the International Organization for Standardization (ISO)
- Provides a single power measure of thermal performance, in watts

ASAE S580.1 NOV2013
Testing and Reporting Solar Cooker Performance

ASABE
American Society of Agricultural and Biological Engineers

Test station designed and assembled by SCI Research Specialist Justin Tabatchnick



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SCI solar cooker testing centers

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(1) California *(USA)*

(2) New York *(USA)*

(3) Nepal (*Asia*)

(4) Kenya (*Africa*)

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Strengthening Capacity

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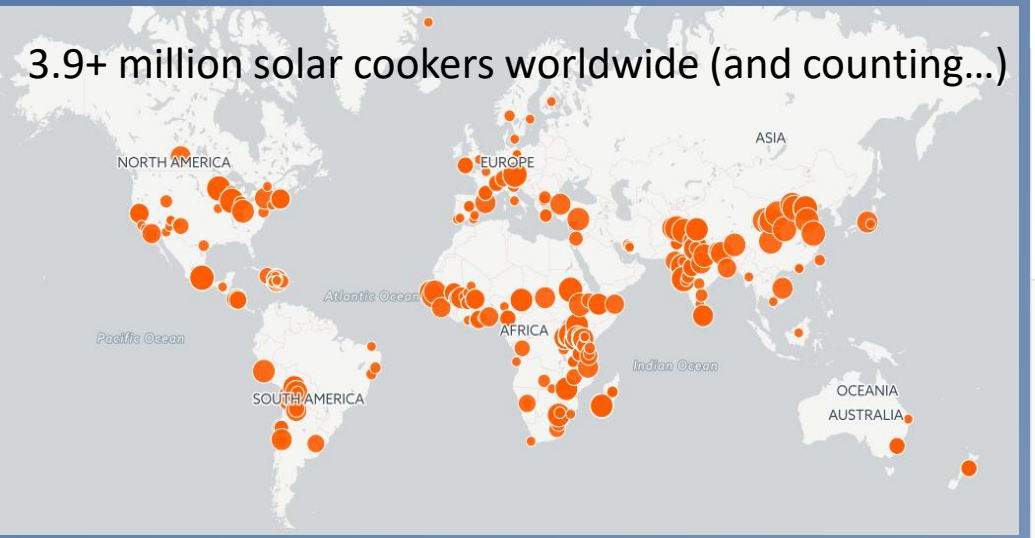
3.9+ million solar cookers worldwide (and counting…)



SCI Toolkit

INTRODUCTORY TOOLS
Learn about the benefits of solar cookers, how they work and how to obtain a cooker

TECHNICAL TOOLS
Learn about solar cooker designs, materials, solar tracking and solar radiation

TESTING TOOLS
Learn about SCI's Performance Evaluation Process - why, how, what and where

ADVOCACY TOOLS
Learn about the United Nations work, other clean cooking advocate groups and promoting solar cooking

NETWORKING TOOLS
Learn about the solar cooking Wiki, consulting SCI, Global Advisors and more

PROJECT TOOLS
Learn about data, impacts and significant projects and add your data to the global map

BUSINESS TOOLS
Learn about financing projects and carbon credits

TEACHING TOOLS
Learn about classroom resources and building solar cookers

Further Engagement (www.solarcookers.org):

- Receive SCI Newsletters
- Economic Impact Sheets
- Survey Tools
- Consulting Services
- Join the SCI Association

Solar Cooking Wiki (www.solarcooking.org):

- Largest online solar cooking database
- About 1,800 pages
- Automatically translates to 46 languages

Connect: info@solarcookers.org

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HIGH-LEVEL POLITICAL FORUM ON SUSTAINABLE DEVELOPMENT

UN HLPF2020 Side Event: July 15, 2020, INFORSE: Local Climate & Sustainable Energy Solutions, South Asia, East Africa, Eco-Village Development, 100% Renewables

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Thanks to

- SCI Global Advisors
- SCI Board of Directors
- SCI United Nations Representatives
- SCI Associates
- SCI supporters
- SCI volunteers
- SCI collaborators

Photo credit: Global Solar Education Project

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