

**Solar Cookers
International...**
1919 21st Street, #101
Sacramento, CA
95814 USA
Tel. 916-455-4499
Fax 916-455-4498
E-mail:
info@solarcookers.org

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A typical solar box cooker as promoted by the government of India

India's solar cooking program

by **Dr. A.K. Singhal**

India being a vast country with a population of nearly one billion consumes its significant share of energy consumption towards cooking. The sources available for cooking are firewood, crop residues and animal dung in rural areas and LPG, kerosene oil and coal in urban and semi-urban areas. The smoke emitted from these fuels pollutes the environment and the kitchens, and also affects the health of family members, especially the rural women. There are problems in availability of cooking fuels also apart from maintaining the supplies of LPG and kerosene in far-flung areas. Solar cooking has

been envisaged as a solution to mitigate these problems to some extent. In India solar energy is abundantly available in most parts of the country. The daily average solar energy incident at many places ranges between five to seven kwh/m² and there are as many as 250 to 300 clear sunny days each year. On clear sunny days, it is possible to cook both noon and evening meals in a solar cooker. Solar cooking does not fully replace conventional fuels, but it helps in substituting such fuels partly.

Different types of solar cookers have therefore been developed which are being promoted in the country by the government of India for use by the individuals and community kitchens. These include solar box cookers, parabolic dish solar cookers, cardboard solar cookers (often referred to as solar panel cookers, these are similar to **Solar Cookers International's** "CooKit"), community cookers for indoor cooking and solar steam cooking systems. A *solar box cooker* is a slow cooking device useful for small families. It can cook four dishes at a time and can save around three LPG cylinders in a year if used regularly. It is an ideal device for domestic cooking during most of the year except the monsoon season and cloudy days. Cookers with electrical back up could be used even during non-sunshine hours. The cooker can be used for preparation of all dishes except for frying or chapatti making. The *parabolic dish solar cooker* is a fast cooking device useful for homes and small establishments. It can cook all types of food including chapattis for about 10 to 15 people; each dish in about half an hour. The cooker can save around five to ten LPG cylinders depending upon its use in homes or small establishments. The *cardboard solar cooker* (panel cooker) is a low cost foldable device and can be used for preparing one or two soft to cook dishes at a time in areas having good sunshine and low wind velocities. The cooker is lightweight and can be easily carried in a bag to any place. Its cost could be recovered in a couple of months. The *community solar cooker for indoor cooking* has a large, automatically tracked parabolic reflector standing outside the kitchen, which reflects the sun's rays into the kitchen through an opening in its north wall. A secondary reflector further concentrates the rays on to the bottom of the cooking pot painted black. It can cook all types of food for about 35 to 40 people and can save up to 35 LPG cylinders in a year with optimum use. The *solar steam cooking system* is comprised of automatically tracked parabolic reflectors coupled in a series and parallel combination, generating steam for use in community kitchens for cooking purposes. It can cook food for hundreds and thousands of people in a very short time depending upon its capacity.



A fast cooking parabolic dish solar cooker in Delhi



Community solar cookers for indoor cooking, like this one at a hostel in Pune, allow for high volume solar cooking in a convenient, shaded environment

To promote these cookers in India, the **Ministry of Non-Conventional Energy Sources** (MNES) has been implementing a promotional scheme under which state government agencies are being provided support in the form of some incentives/ service charges that are linked with actual sale of box solar cookers. Higher incentive is provided for sale of **Bureau of Indian Standards** (BIS)-approved solar cookers. This support is being utilized for a number of purposes, including publicity and awareness campaigns through advertisements, cooking demonstrations and competitions; training programs for sale promotion and after sales repair services; development of state-wide network for sales and servicing; and free distribution of solar cookers (one each to government recognized institutions e.g. schools, colleges, universities, etc.). The cookers can be sold through state government agencies as well as their associated promoters, which include private establishments, nongovernmental organizations (NGOs), Aditya Solar Shops, petrol pumps and self-employed workers (SEWs), deployed by them for sale promotion and providing after sales repair services at the doorsteps of users.

The MNES provides incentives for promotion of solar cooking in three forms.

1. Incentives of 100 Rupees (Rs) are paid to State Nodal Agencies (SNAs) for each solar box cooker sold. (Each state has its own SNA, which is responsible for promoting renewable energy.) If the cookers are sold through an associated promoter, rather than from SNA's own outlet, half of the incentive goes to the seller and half to the SNA. If the cooker carries the BIS mark of approval, the subsidies double to a total of 200 Rs.

(Note that Rupees were valued at 50 to one US dollar as of January 2003.)

2. The MNES will spend up to 150,000 Rs to support reputable NGOs, institutions, regional test centers and SNAs for promotional activities like publicity, solar cooking demonstrations and competitions, seminars, workshops, evaluation studies, development of improved models, etc., based on specific proposals made to the MNES.
3. The MNES will support manufacturers who obtain approval certificates from the BIS. When proper documentation is presented, the MNES will reimburse 100 percent of the BIS fee during the first year of the five-year plan and 50 percent in subsequent years of the plan.

The MNES also provides financial support for installation of the following types of *concentrating solar cookers*:

Parabolic dish solar cookers: Users of parabolic dish solar cookers of at least 1.4-meter diameter will be subsidized by up to 50 percent of the total cost (maximum of 2,500 Rs per cooker), while the SNAs may receive up to 250 Rs per cooker for their role in implementation and monitoring of the program.

Community solar cookers for indoor cooking: Fifty percent of eligible capital cost (up to 25,000 Rs per cooker) will be paid to users for each community solar cooker for indoor cooking (minimum aperture area is 7 square meters). SNAs may receive up to 2,500 Rs per community cooker for their role in installation and monitoring the performance of the cooker.

Solar steam cooking systems: Support of up to 50 percent of eligible capital cost will be provided to the users for the installation of each solar steam cooking system, while SNAs may be eligible for support ranging from 1 to 2 percent of the total cost of the system for their role in installation and monitoring the performance of the system.

This support is likely to be reduced after two years of the five-year plan.



A typical solar box cooker as promoted by the government of India

The MNES has conducted a solar cooking implementation program since 1982. Prior to 1994 only box solar cookers were promoted through government subsidies. Currently, there are about 30 manufacturers of box solar cookers, 15 of concentrating type solar cookers and only one of cardboard solar cookers. A total of around 530,000 box solar cookers have been sold in the country. In addition, around 500 parabolic dish solar cookers, 60 community cookers for indoor cooking and 6 solar steam cooking systems have reportedly been installed. The world's largest solar steam cooking system, used to cook for around 15,000 people per day, has been installed at a temple in Tirupathi, Andhra Pradesh, and is functioning satisfactorily since October 2002. (See [News you send](#) later in this issue.) The system generates around 4,000 kg of steam per day and is expected to save around 118,000 liters of diesel per year. Cardboard cookers sold may be around 500 only. During the 10th Five Year Plan started from 2002-03, the government of India has projected a sale target of 210,000 solar cookers in the country, which include all types of solar cookers.

(Editor's note: SCI's annual report included a factual error about India's solar cooking program. Dr. A.K. Singhal, Director of the solar cooker program of India's Ministry of Non-Conventional Energy Sources wrote to correct our error: "We are a little surprised to see this statement as we feel that the figure of 100,000 CookKits might have been taken by SCI from the draft document for 10th Five Year Plan prepared by the Ministry for the Planning Commission of the government of India. In fact, as per the approved national plan, a total target of 210,000 solar cookers have now been projected in the country which includes solar box cookers, cardboard solar cookers (CookKits), concentrating type solar cookers such as dish cookers, community cookers for indoor cooking (Scheffler type), solar steam cooking systems, etc." We hope this article clarifies the status of India's solar cooking program.)

Contact: Dr. A.K. Singhal, tel: 091-11-224362488, fax: 091-11-224360331, e-mail: singhalak@hub.nic.in.

SCI welcomes Dinah Chienjo

Solar Cookers International (SCI) recently hired **Dinah Chienjo** as the new Sunny Solutions project officer. She was chosen from a strong list of candidates.



Dinah hones her solar cooking skills

Dinah resides in Kisumu, a city close to the project site, and has been active in a number of community organizations focusing on the rights of women in inheritance matters, HIV/AIDS, guidance and counseling. She earned a bachelor of arts in education from Kenyatta University and taught high school for a number of years.

Dinah has undergone orientation and is now working with other SCI staff and our partner organization, **NYACODA**, to prepare for the upcoming baseline survey.

Calling all solar cookers

Tom Sponheim, volunteer Webmaster of SCI's website "The Solar Cooking Archive," has begun a series of interviews with solar cooking activists from around the world. The series -- Calling All Solar Cookers -- is broadcast live on the Internet at <http://solarcooking.org/media/broadcast>. Archived copies of past interviews are available anytime. Interviews have been conducted thus far with **Wilfred Pimentel**, **Forest Kaser**, **Barbara Knudson**, **Bob Metcalf**, **Alec Gagneux**, and **David and Ruth Whitfield**. Tom plans to conduct two interviews per month. If you know of someone who is doing exciting solar cooking work that would make a good interview subject, let Tom know by e-mail: webmaster@solarcooking.org.

Tributes

Tribute gifts have been given to SCI by:

Dorothy Hansen in memory of her sister-in-law, **Virginia Henry Lockett**

Jean Soost in honor of **Mr. and Mrs. Jerry Clinton**

J.C. Turner in the name of her brother-in-law, **Kevin McGonagle**

David Unruh in the name of **Robin Mayer**

Shirley Augustine in memory of **Doug Augustine**

Mona and Irving Ackerman in honor of **Barbara Knudson**

Mary Frances Arogon in honor of her sister-in-law, **Betsy Manez**

Charles and Dana Larson in memory of **Robert H. Larson**

Ann Prego in honor of her daughter, **Tamara Gonzalez**

Joan, Martin and Marika Rosen in honor of **Eleanor Shimeall**

Megan Williamson in honor of her father, **Gordon Williamson**

Amy F. Williamson in honor of her father, **Gordon F. Williamson**

Millie Baird in memory of **Clarence D. Fornwald**

Charles and Mary Erickson in honor of **Cindy Erickson and Joe McCabe**

A new chapter

by **Terry Grumley**

SCI Executive Director

On May 31, 2003, I will be stepping down from **Solar Cookers International** (SCI). It has been a pleasure and a privilege to serve this organization and the wonderful people who constitute it as members, volunteers, financial supporters, partners, board members and staff. It is truly a unique organization carrying out a wide range of activities, surprising for its size, while able to maintain a sense of personal contact with a strong membership. Although personal reasons bring me to this decision, I plan to continue as a member of the SCI family and to support SCI in whatever ways I can.

I feel that we have accomplished a lot together over the last three years: the development and implementation of a three-year strategic plan, adding and integrating staff while increasing skills and knowledge of the whole organization, increasing technical support capacity in preparation for a stronger outreach initiative, starting a new and exciting model project in western Kenya while preparing for the transition/ phase-out of older projects in Aisha and Kakuma refugee camps, heightening our visibility through various international forums as well as significantly increasing our membership and funding base.

The organization is strong and I think the transition to a new executive director should be reinforcing to the organization at this point in time. The new director will find a larger

team of staff, highly qualified and with more experience. With the strategic plan in place, there is a clear framework to guide the team's progress, reinforced with clear activity schedules, a process in place to periodically assess progress and make course corrections, and a solid and mutually supportive relationship between the board and staff.

SCI's work is more relevant than ever with the continuing depletion of the world's forests and potable water supplies. While all too often most of the news from developing countries dwells on the overwhelming negative, SCI focuses on the positive. Solar cooking and solar water pasteurization provide a solution that can make a huge difference for individuals and families. Our projects help people to help themselves. These efforts pull people together with a sensitivity for looking beyond themselves and their own (or their country's) personal interests to make the world a better place for all through improving the environment.

The promotion of new technologies in different countries is a challenging process. While we don't have unlimited resources, we do have an ability to use an appropriate technology approach to develop technologies that really work and make a difference for people at the grassroots level. SCI volunteers and staff get out into the field, work as a team with stakeholders, try different approaches, record that experience and then look for the most appropriate ways to share the knowledge gained. At the same time we provide a forum and support for others to do the same.

SCI is a small but dynamic organization, idealistic yet practical. It gets a big bang for its buck. We will continue to provide a forum for all, North and South, to work together to find appropriate methods and technologies that make the world a better place for all of us.

Thanks for joining SCI and for continuing to help it along. SCI appreciates the confidence you show in providing support and joining this endeavor. To all of you whom I've had the privilege to know and to work with, thank you. I leave with gratitude for the opportunity to have served SCI these last few years and with confidence that there will continue to be even better things to come.

Worldwide survey coming soon

Solar Cookers International (SCI) staff are preparing a survey to be sent to hundreds of solar cooks and solar cooking/ pasteurization promoters around the world. The primary purposes of the survey are to learn more about the quantity and quality of information available within the fields of solar cooking and solar pasteurization, and to determine if there are any gaps in that information. The survey will also help SCI to update its directory of promoters and will provide valuable guidance in the creation of future educational materials.

Though the survey will not be sent to our entire mailing list, many of you will receive it. Please be looking for it in the weeks ahead and return the completed survey as soon as possible. For those of you who do not receive a survey, but would like to participate, we will have the survey available through our website (<http://solarcooking.org>) when it is ready.

Thank you in advance for your help!

Contact: Kevin Porter, Office Manager, Solar Cookers International, 1919 21st Street, Suite 101, Sacramento, California 95814, USA. Tel: (916) 455-4499, fax: (916) 455-4498, e-mail: info@solarcookers.org.

News you send

AFRICA AND EUROPE

Germany



Physicist **Bernd Hafner**, chef **Willi Heinzen** and retired public health physician **Dr. Paul Krämer** have written a book titled "Solarkocher: Grundlagen sowie praktische, sozio-ökonomische und ökologische Betrachtungen" (Solar cooker: basics, practical, socio-economic and ecological aspects). The text of the book discusses the need for solar cooking, particularly in Africa, and explains some of the science behind solar cookers. Multiple methods of cooking are also discussed. The book contains over 100 color photos of solar-cooked foods and solar cookers being utilized. It was published in 2002 by Süd-West-Information in Münster-Sarmsheim. The price is 16.80 Euro (about US \$18). ISBN: 3-00-010457-7.

Contact: Paul Krämer, e-mail: P.Kraemer.Soest@t-online.de; Süd-West-Information, Rheinstraße 105, D-55424 Münster-Sarmsheim, Germany. Web: <http://www.sw-information.com/>.

Ghana

A team of volunteers went to the Volta region of Ghana in November 2002 in support of a **Rotary Foundation** grant. Their primary purpose was to teach village dwellers how to care for newly installed wells and to provide health education and support. One of the volunteers, **Carole Rogers**, visited the headquarters of **Solar Cookers International** (SCI) prior to her trip to purchase solar cookers and learn more about solar cooking. With her cookers and new skills, she and other team members trained Ghana health workers who will be traveling to villages to conduct health programs. Ms. Rogers is hopeful that this will lead to a small solar cooking program, and that additional solar

cookers will be produced locally. She indicated that a grant proposal might be submitted to further support this program.



Volunteer John Mulrooney demonstrates solar water pasteurization using SCI's CookKit solar cooker and water pasteurization indicator (WAPI)

Contact: Carole Rogers, e-mail: csrogers@attbi.com.

Mali

Gnibouwa Diassana, a promoter of solar cookers for many years, sent in these photographs of promotional work over the past months.



During a workshop, a group of youth build the MR30P (Multi-reflector 30° Petit) cooker designed by Mr. Diassana



A solar cooking demonstration for Village Development Committee members and schoolchildren in Niamana, February 2002

Mr. Diassana (middle) demonstrates some of his solar cookers at an exhibit of innovative technologies in Bamako, September 2001



Contact: Gnibouwa Diassana, B.P. 26, Bla, Mali. E-mail: gnibouwa_diassana@wvi.org

Switzerland

The **Women's World Summit Foundation (WWSF)** led a solar cooking construction workshop at the World Civil Society Forum held in Geneva in July 2002. Two cookers were built, one made of wood, the other of cardboard. Solar water disinfection was also discussed.

Contact: **Maria Penalosa**, e-mail: mariavh2000@yahoo.com, web: www.woman.ch.

Uganda

The **Welfare Society for Disabled People** (WSD) continues to spread solar cooking throughout Uganda. The society has 10 solar cooking trainers, who teach using a variety of cookers. The WSD has been identifying and mobilizing members who are interesting in solar cooking. Over 170 groups have been organized and are ready to use solar cookers. Last year, the WSD warmly received visitor **Eric Glumstrom** -- a student from Colorado, USA -- who was initiating a solar cooking project in Kiryandongo and Kyangwali refugee camps. Camp leaders indicated a willingness to distribute solar cookers to camp residents and assist with the project. The WSD is grateful to Mr. Glumstrom for funds and equipment he provided them. The WSD is currently exploring a partnership with **Sun Ovens International**, which has expressed an interest in helping spread solar cooking in Uganda. To help further their work, the WSD is in need of vehicle support, additional training and communication equipment.

Contact: Welfare Society for Disabled People, P.O. Box 403, Hoima, Uganda; **Amos Byakagaba**, tel: (256) 77-891381, e-mail: amosbya@yahoo.com.

THE AMERICAS

Chile

Louise Meyer, of **Solar Household Energy**, was in Chile recently visiting solar cooking sites. Her first destination was an environmental education center called "Canelo de Nos," located one hour south of Santiago by train. Next, she visited the community of Villaseca, where much of the population solar cooks and a successful solar restaurant is in operation.

Canelo de Nos serves as a demonstration site for educators and offers classes, through its "Green College," which incorporate solar cooking education. The center has on display a number of solar cookers, a solar dryer, and a solar water pasteurization oven made of insulated compartments designed to hold water-filled bottles painted black.



Louise and Pedro Serrano, an appropriate technology engineer, investigate the solar water pasteurization oven

At **Villaseca Solar Restaurant**, Louise was treated to a wonderful meal of salad, bread rolls, roasted goat with rice, milk pudding (leche asada), cake and coffee. The restaurant serves lunch to 35 to 70 people daily, including tour groups, school groups and senior citizens. The restaurant owners also assemble solar cookers, which are sold for approximately US \$100.



Solar box cookers and a parabolic cooker used at Villaseca Solar Restaurant

Louise discovered that solar cooking is well known throughout Chile due to television, radio and newspaper publicity. However, it does not receive governmental support, and gas and oil prices are currently kept low, so there is less incentive to solar cook (especially in urban areas). On the bright side: While there, Louise learned that the European Union granted Chile a US \$3 million package over the next three years to help prevent deforestation. A percentage of the money will be used to promote solar cooking.

Contact: Louise Meyer, 3327 18th Street NW, Washington, D.C. 20010, USA. Tel: 202-328-6834, fax: 202-319-2074, e-mail: lmeyer@ids2.idsonline.com, web: www.she-inc.org; for restaurant information, contact: Villaseca Solar Restaurant, Villaseca, Chile. Tel/ fax: + (51) 412 189

United States

Nevada

Solar cooking enthusiasts in Nevada have formed the **Nevada Solar Cookers Association**. Members gather to share recipes, ideas and stories. Spreading the news about solar cooking is a major goal of the group, and members are therefore invited to participate in solar cooking demonstrations at fairs, schools and other public events. They are also encouraged to join **Solar Cookers International**. Membership in the association is US \$5 per year, and benefits include a newsletter, special discounts from sponsors, a membership card and certificate, and reduced-cost rental of a large solar cooker for events.

Contact: Nevada Solar Cookers Association, c/o Vegas Trailer Supply, 3076 East Fremont, Las Vegas, Nevada 89104, USA.

New York

Sustainable Technology and Energy for Vital Economic Needs (S.T.E.V.E.N.) has developed and promoted solar cookers for a number of years. The nonprofit foundation, based in Ithaca, works to make low-cost solar energy technologies available to all people, especially the poor and disadvantaged, through cooperative entities such as family groups and community cooperatives.

Their basic one-foot-square cooker has been used for a number of years, with larger sizes available. The largest cooker, at three-feet-square, is intended to be used to cook and bake for communities -- it is capable of baking up to 100 loaves of bread per day in full sun.

Over the last few years, S.T.E.V.E.N. has influenced solar cooking work in Bolivia, Haiti, Peru and the United States.



Cornell University students with home-built, S.T.E.V.E.N.-designed solar ovens in background

Contact: S.T.E.V.E.N. Foundation, 414 Triphammer Road, Ithaca, New York 14850, USA. E-mail: jv19@cornell.edu or francisvanek@yahoo.com, web: www.lightlink.com/francis/stevenhomepage.html

ASIA AND PACIFIC

Australia

In the July 2002 *Solar Cooker Review* a description was given of a large community solar box cooker produced at Hillside Farm in Gosnells, Western Australia. **Sunny Miller** of the **Solar Cooking Interest Group** sent in these photos, showing demonstrations of the cooker at various schools in the area.



Students from Leeming High School, near Perth, turn on the cooker's photovoltaic-powered air circulation fan



Year one and two students from Beckenham Primary School, near Perth, cook pizzas in the community cooker ...



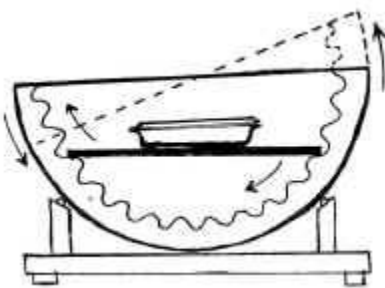
... and in a simple solar box cooker with two reflectors, a common design in Western Australia.

Contact: Sunny Miller, Solar Cooking Interest Group, c/ 23 Morley Street, Maddington, W.A. 6109, Australia. Tel/fax: (08) 9459-3606, e-mail: sunny@multiline.com.au

Derrick Hobbs of **Barefoot Engineering** has designed a rather unique solar cooker that he calls the "solar drum oven." The body of the cooker is half a 44-gallon drum, which sits in a wooden frame. The interior is corrugated iron bent in a semi-circular shape to fit inside the drum. A moveable black shelf, spanning the distance between opposing corrugations, holds cooking pots level and allows the cooker to be rotated on its horizontal axis for optimal sun exposure at different times of the day and year. The cooker's reflector, when not in use, closes down over the glass window to keep food warm and prevent damage to the glass.



Derrick Hobbs and his "solar drum oven"



A cross-section shows how the moveable shelf allows cooker rotation

Contact: Derrick Hobbs, Barefoot Engineering. Tel: 61 08 9455 1260, fax: 61 08 9455 6563, e-mail: d.hobbs@per.globaldial.com, web: www.barefootengineering.com

China

Teong Tan, a designer and promoter of solar cookers in Shanghai, writes to tell a little about his creative process: "I enjoy solar cooking on a recreational basis, especially in the summer when I get better sunshine. When the weather is not ideal for solar cooking, I find myself working on improving solar cooker designs, something that I have found to be challenging and enjoyable. Typically, when I have an idea about a solar cooker, I would make a small model of the cooker using thick paper and aluminum foil. Models are easy to make and to modify. With a model to look at, I would let my imagination do its thing or I would just play around with the model, and sometimes better ideas come about just like that. The model gets modified over time, and a full size prototype is made only after I am happy with the model design."

Recently, Mr. Tan taught the **Girl Scouts of Shanghai American School** how to solar cook. They cooked rice and eggs using **Solar Cookers International's** "Cookit" and his "DATS" cooker (see the [March 2002 Solar Cookers Review](#)). After he explained the principles of solar cooking, the girls made a cardboard Cookit themselves. They were

all excited and amazed when they saw the rice and eggs cooked with the simple CookIt! Says Mr. Tan, "I guess seeing it convinces people that solar cooking is a possible option."

Contact: Teong Tan, e-mail: thtan@online.sh.cn

India

The world's largest solar steam cooking system was inaugurated on October 11, 2002, in the temple town of Tirumala, in the state of Andhra Pradesh. The system is capable of cooking up to 30,000 meals per day.



According to a press release, "The steam cooking system comprises 106 parabolic concentrators [based on **Wolfgang Scheffler's** design], each having a reflector area of 9.4 square meters. The reflectors have been installed on the rooftop of the "annadanam" complex, which serves free meals to thousands of pilgrims who visit the Venkateswara temple every day. The concentrators have been installed in pairs along five rows. Each pair of reflectors concentrates solar radiation on to a receiver. The solar heat converts the water in the receivers into steam. The steam is collected and transported through pipelines into the kitchen for cooking a variety of dishes. A backup boiler based on diesel is also available to take care of cloudy days.

"It will help save about 50 percent of the diesel that would otherwise be consumed for generating the steam. The annual saving is estimated at 118,000 liters of diesel, valued at over Rs. 2,300,000. [As of January 2003, US \$1 was approximately equal to Rs. 50.] The total cost of the project is about Rs. 11,000,000, of which nearly Rs. 4,800,000 has been provided by the **Ministry of Non-Conventional Energy Sources.**"

The largest solar steam cooking system hitherto was located at Brahmakumaris Center at Taleti, near Mt. Abu, which has been functioning well for over three years.

Contact: **E.V.R. Sastry**, Advisor (Solar Energy), Ministry of Non-Conventional Energy Sources, Block No. 14, C.G.O. Complex, Lodi Road, New Delhi - 110 003, India.
Tel/fax: 91-11-4360764.

Renewable energy specialist **Dr. A. Jagadeesh** has developed a portable solar water disinfection device he calls "Everybody's Coloured Jaga SODIS." (For more information on the SODIS procedure, see the [November 2002 issue of the Solar Cooker Review](#) and visit the website www.sodis.ch.) Dr. Jagadeesh's device consists of two "planks," as he calls them, each containing multiple grooves, black in color, designed to hold bottles of water. The black color increases the heat generated from the sun's radiation, which has been shown to make the SODIS process three times faster if water is heated to at

least 50°C. The angle of the device to the sun is adjustable. When not in use, the planks are folded together, allowing the unit to be carried like a briefcase. Production costs are approximately 300 Rupees (roughly US \$6) each, and the device can be made locally.



"Everybody's Coloured Jaga SODIS" shown in use (left) and folded for transport

Contact: Dr. A. Jagadeesh, 2/210 First Floor, Nawabpet, Nellore 524-002, Andhra Pradesh, India. Tel: + 91 861 321580, fax: + 91 861 331848, e-mail:

a_jagadeesh3@yahoo.com

Japan



What is likely the first commercial parabolic solar cooker to be manufactured and sold in Japan became available in the fall of 2002. According to product literature, solar cooker "Kirapika" consists of an 80-cm dish reflector that sits on a tripod. It is capable of boiling one liter of water in 30 minutes. The cooker costs 39,800 Yen (approximately US \$325) and comes with a kettle and cooking pot.

Contact: Kobo Amane (Motoharu Takizawa), 356 Kuwayama, Asashina-mura, Kitasakugun, Nagano 384-2101, Japan. Tel/fax: 81-267-51-5430, e-mail:

amane@mx2.avis.ne.jp, web: <http://w2.avis.ne.jp/~amane/>

SCI has t-shirts!



Show your support for solar cooking with an organic cotton t-shirt from **Solar Cookers International** (SCI). Artist **Joan Delehanty**, to whom we are extremely grateful, created the beautiful t-shirt [image](#) of women solar cooking in Africa. The artwork is vibrant and colorful.

The t-shirts are cut and sewn by **Maquilador Mujeres**, a worker-owned cooperative in Nueva Vida, Nicaragua. According to Maggie's Functional Organics®, distributor of the t-shirts, the cooperative is a dream come true for these women, who found themselves having to work in sweatshops after the devastation of hurricane Mitch. With support from Maggie's and the Jubilee House Community, Inc., the women were able to construct a building by hand, install sewing equipment, and learn the ins and outs of making organic cotton garments. Now they are working towards a better life for themselves by managing their own business and earning a fair wage.

Don Coan, an extraordinary SCI volunteer, recently visited Maquilador Mujeres. He took an SCI t-shirt to the women, who were thrilled to see an example of their shirts put to use.



Don, wearing his SCI t-shirt, visits with two Maquilador Mujeres workers

The t-shirts are sized generously and are available in small, medium, large, extra large, and double extra large. Expect a small amount of shrinkage after washing. Proceeds from the sale of t-shirts, as with all the products listed in the [order form](#), help support the nonprofit work of SCI.

Energy Builders

Last fall, **Solar Cookers International** (SCI) was invited to participate in a series of renewable energy workshops that will result in the production of 30-second educational videos targeting elementary and middle school children ages 8 to 14. The multi-lingual video series, called Energy Builders, will utilize a unique animated documentary format to educate students on five renewable energy topics including solar energy, wind energy and biogas. The videos will be broadcast on various television stations and websites this coming summer.

During two days of workshops, volunteers **Dave Martin** and **Don Coan**, along with SCI staff member **Kevin Porter**, led groups of youth through the construction of solar "CooKits," using cardboard, aluminum foil and glue. The youth seemed to genuinely enjoy themselves. They all wanted to take turns with the glue!

The series is produced by **EB Productions**, who will eventually have videos, project descriptions and project materials available on the Internet at www.energytv.org.

A little information goes a long way

As a response to inquiries received from information seekers worldwide, **Solar Cookers International** (SCI) often sends out literature about constructing, using and disseminating solar cookers and spreading solar cooking skills. More often than not we are unable to follow up with recipients of this information, and therefore are left wondering to what degree the information was useful. However, on the occasions when we do receive follow-up reports, it is exciting and encouraging to hear how the information was used. This is particularly true when the information we sent leads to successful uptake -- at least on a small scale -- of solar cookers in a community. The

following letter, received from **Joseph Odey** last July, is a wonderful example of such in instance. He used panel-type cookers similar to SCI's CookKit, and claims that it has proven useful for cooking foods such as rice, cake and bread.

Says Mr. Odey, "I am happy to let you know that a total of 113 cookers were distributed to 15 villages within the Kainji Lake area, with an average of five cookers per village. This distribution was done by demonstration after teaching them how to make and use the cookers. Food ingredients of different varieties were cooked with the cooker as samples and were tasted by all those present. The cookers used for demonstration were then sold to interested buyers at the cost of N350.00 only. After two months, I went around the villages where the cookers were distributed for monitoring and evaluation. It was discovered that more than 200 additional cookers had been constructed by the villagers and were in use. Some migrating fishermen carry theirs along with them. My reaching out to them with the technology was to impart the knowledge of how to make and use it. Materials for construction were displayed for the people for proper viewing and identification. I purchased all these materials and took them along with me to the field. At the **Fisheries Society of Nigeria (FISON)** conference held in Maiduguri, Nigeria, in November 2001, solar cookers were demonstrated by me and it was discovered that the cooking times were faster due to the intense sunlight in that area. The State Governor who witnessed the program commended the technology and wished that it would be extended to the state."

Contact: Mr. Joseph Odey, c/o KLMFCU, P.O. Box 306, New Bussa, Nigeria.

Power to do good

Can you afford to be generous?

Solar Cookers International depends on your individual contributions to carry out the spread of solar cooking worldwide, especially in communities where scarcity of cooking fuel is a rising cause of hunger.

Please consider these giving options:

Spreading the word

Recruit potential members by asking interested friends, "Did you know that a forty dollar contribution to SCI provides cookers and cooking supplies for a refugee family?" or, "Did you know that twenty-five dollars provides food for two workshops lead by local refugee trainers?"

SCI in your will

"I give and bequeath to Solar Cookers International of Sacramento, California \$ _____ (or _____% of my estate) to be used for its humanitarian purposes."

Investing in SCI

If you have a choice between donating appreciated stock or cash to SCI, there are two tax advantages of donating stock. First, you receive an income tax charitable deduction for the full market value of the stock at the time it is donated. Second, you avoid paying any capital gains tax on the increase in value of the stock. You can invest in SCI and invest your cash in current stock. It's a win-win situation!

Contact Virginia Callaghan at (916) 455-4499 to discuss donations and stock transfers. Consult your financial planner for additional information. Thank you.

Solar cooking skills spread in Turkey

An article in the [November 2001 edition of the Solar Cooker Review](#) described a new solar cooking project in southeastern Turkey aimed at teaching solar cooking skills to rural populations, small-town residents and migrant workers. Project leaders, mostly from the **Seyhan Rotary Club** of Adana, Turkey, chose the solar CookKit as the first cooker to popularize. A small pilot project was initiated in May 2001 by a delegation of volunteers, including **Barbara Knudson**, who serves on the boards of directors of both **Solar Cookers International** and **Solar Household Energy**, and Rotarians **Wilfred and Marie Pimentel** from Fresno, California, USA.

As the newly trained solar cooks and solar cooking teachers began practicing their trades, steps were taken to fund the program through various Rotary Clubs' contributions together with a matching grant from **Rotary International**. The funds became available in November 2002. Meanwhile, solar cooking continued to spread in the Adana area.

In November 2001 **Rotary District 2430** Governor **Ömer Tezcan** ordered 1,000 CookKits for the Adapazari earthquake damage area. In May 2002 two women involved with the Adana project, **Güler Macun** (trainer coordinator) and **Sükran Bağcier**, were sent from Adana to Adapazari. With help from past club president Rotarian **Atilla Yaman**, they demonstrated the usefulness of the simple cookers. Local press and the Governor of Adapazari showed great interest.

"The Cukurova University Center for Environmental Research, other Rotary and Rotaract Clubs, local black-pot and CookKit manufacturers were all quite helpful," writes one of the project leaders, **Abdullah Paksoy** of the Seyhan Rotary Club. "In April 2002, we held a big lunch picnic at the university campus and served delicious solar-cooked dishes to about 200 people. Two major newspapers reported our activities with color photos."

The Seyhan Rotary Club also had 1,600 more CookKits manufactured in Turkey, where the devices are called "Gunes Ocagi." During 2002, about 300 women in the Adana area took classes and learned how to solar cook.

Among other activities, the Misis Rotary Community Center of the Seyhan Rotary Club kept working with solar cooking courses. The **Adana Street Children Association**, led by **Dr. Fazilet Aksu**, provided a location where street kids were served free solar-cooked lunches. Mr. Paksoy writes, "The Adana Rotary Sevensprings (Yedipinar) Center for Handicapped Children provided us with a good urban park where the families and mothers of handicapped children were given lessons on how to solar cook. Both of the woman who've served as park manager, **Nagehan** and her successor **Özlem Savci**, are very enthusiastic about our activities."

In May 2002 at the Rotary District 2430 conference held in Göynük, Antalya, the Seyhan Rotary club was chosen -- from among 85 clubs -- to receive the District Community Service Project award for its pioneering works to promote solar cooking in Turkey.

A Villager Sun Oven® will soon be purchased for use at the Rotary Sevensprings Center for Handicapped Children. This large, dramatic-looking solar box cooker can cook 100 loaves of bread in an hour, and project leaders think it will help arouse public interest better than the modest CookKit. Acquisition of the Villager oven from **Sun Ovens International** is a joint project of the Seyhan Rotary Club and the **Fresno Rotary Club** (California, USA), with special involvement from Rotarian Wilfred Pimentel. Also involved are the **Temple Solar Project (Rotary District 6450, Illinois, USA)**, in particular **Patricia Merryweather**, and three Rotary Clubs in England: the **Whitstable Rotary Club**, the **Chislehurst Rotary Club** and the **Deal Rotary Club**, which joined in the project after learning of it from Mr. **Himansu Basu**.

Solar cooking lessons for women in Adana began in late 2002 at the Saydam Street Community Center.

Mr. Paksoy summarizes the attraction of solar cooking in Turkey: "With 3,200 hours of sunshine yearly, southeastern Turkey provides an ideal location for expanding solar cooker usage. The summers are hot (40°C) and dry. Many trees and shrubs are burned here as fuel. Taking advantage of local Rotary organizations shall make progress easier. Already, contacts have been established in the cities of Diyarbakir and Sanliurfa.

"We have had our share of obstacles, but our team shall prevail to set an example for other needy communities that will benefit by using the sun's abundant and free energy."

Contact: Abdullah Paksoy, Kurtulus Mah, Sinasi Ef. Cad 9/1, 01120 Adana, Turkey. E-mail: aspaksoy@ttnet.net.tr

About *Solar Cooker Review*

Solar Cooker Review is published two or three times per year, with the purpose of presenting solar cooking information from around the world. Topics include solar cooker technology, dissemination strategies, educational materials, and cultural and social adaptations. From time to time we cover related topics such as women's issues, wood shortages, health, nutrition, air pollution, climate change and the environment.

Solar Cooker Review is sent to those who contribute money or news about solar cooking projects. The suggested subscription price is US \$10/year. Single copies are sent free to select libraries and groups overseas. Back issues are available online: <http://solarcooking.org/docs.htm>

We welcome reports and commentary related to solar cooking for possible inclusion. These may be edited for clarity or space. Please cite sources whenever possible. We will credit your contribution. Send contributions to [Solar Cookers International](#), 1919 21st Street, Suite 101, Sacramento, California 95814-6827, USA. You may also send them by fax: (916) 455-4498 or e-mail: info@solarcookers.org

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Solar Cookers International

1919 21st Street, #101
Sacramento, CA 95814, USA

Tel: +1 (916) 455-4499

Fax: +1 (916) 455-4498

Email: info@solarcookers.org

Web: <http://solarcooking.org>

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