

S.T.E.V.E.N.

Sustainable Technology and Energy for Vital Economic Needs

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N E W S L E T T E R 2 0 1 2

WARM GREETINGS and welcome to the 2012 newsletter of the STEVEN Foundation, Ithaca, New York, USA, incorporated in 1986 to work on small-scale appropriate technologies, especially on behalf of low-income countries in tropical regions of Latin America, Africa, and Asia. At a time of increasing challenges related to growing greenhouse gas emissions from burning fossil fuels and effects of climate change, we continue to pursue small-scale renewable energy, especially in the form of solar ovens and cookers, as an alternative to burning of fossil fuels or deforestation. In summer of 2012, board members Sarah Cummer and Bob Parks were both able to attend the annual meeting of the STEVEN Foundation, along with Jaroslav, Wilda, Steven, and Francis Vanek. We appreciate the long-time commitment of Sarah and Bob to the board.

ACTIVITIES IN CENTRAL AMERICA FOR 2012

Our work in Central America consisted of two missions, one to Costa Rica in February and one to Nicaragua in April. In February, Francis visited the site of the Centro de Investigacion de Recursos Naturales y Sociales (www.cirenas.org) in the Nicoya Peninsula area of Costa Rica to lead the construction of two solar ovens, one for use at the center and one for use by a local elementary school in nearby community. On hand to join in the building of the ovens were co-directors of Cirenas, Caroline Grew and Tucker Szymkowicz; the students from the elementary school; and a group of visiting high school students from the U.S. who were participating in a 9-week semester abroad program.



The photo on the left shows the Costa Rican students working with a U.S. student on the painting and assembly of the frame of the oven; on the right Francis is setting the angle of the reflector relative to the sun. In the space of two weeks, the group was able to assemble the two ovens to the point that they were able to be used for cooking shortly before Francis departed. In the meantime, Francis had also brought from the U.S. a commercial "Sun Oven" (also visible in the right photo, at the lower left) which proved highly useful

to demonstrate the potential to cook tasty food with the sun every day, even as the group worked on building the other ovens.

In April, Francis returned to Central America, this time to Nicaragua with family members Catherine Johnson, Ray Vanek-Johnson, and Mira Vanek-Johnson, to visit the Mujeres Solares de Totogalpa center



with which the Cornell ESW program has maintained a connection for several years. The family spent approximately one week staying in homestays in the village near the center and building a smaller-size oven (20" x 20" as opposed to the more standard 30" x 30"), which was later donated to a local family. Each day two different members of the women's cooperative would join us to share in the gradual building of the oven; shown at left are Rumalda and Yelba (they typically did not use last names) along with Mira, Catherine, and Ray, with the partly finished oven and angle-iron frame in the foreground. During the visit we were also able to deliver some \$2,500 that was gathered from a fundraising effort conducted in

the U.S. prior to traveling. While visiting Totogalpa we observed solar ovens in use every day for roasting coffee, baking cookies, and supplying food to the "solar restaurant" that is now up and running as part of the center.

WORK ON SOLAR OVENS IN ITHACA AND AT CORNELL

At Cornell University, Francis Vanek continues to play a supporting role in the research of the Cornell Engineers for a Sustainable World solar oven laboratory, which is supervised on a day-to-day basis by Tim Bond. Depending on the time of year, between 5 and 15 Cornell students are at work in the lab, building prototypes and performing various tests. Work in the laboratory this year includes efforts to advance a lightweight collapsible solar oven design of similar thermal performance to the classic wood-and-sheet-metal design that is commonly built in Nicaragua (see discussion and photograph below). The collapsible oven would be easier to transport in areas without roads and also avoid the risks from glass breakage. Students are also working in the lab in an ongoing way with the development of a concentrating solar cooker, which can achieve higher temperatures than the oven with flat reflectors.

2012 was also an excellent year in Ithaca for solar cooking (though a tough year for local agriculture, as it was in most of the U.S.!), with hot, sunny weather most days. Between two ovens we set a personal record for most solar cooking "events" (that is, instances of using the solar oven to cook one dish), at 65 events total between April and September, using two ovens. Thus if there was a particularly sunny day and we had much demand for cooking, we might use each oven twice, generating four events. One of the ovens was a commercial Sun Oven (see www.sunoven.com), and while not an oven of our own making, it was interesting to use it as a benchmark to evaluate how higher temperatures and faster cooking time can extend the versatility of an oven. We can work toward emulating this example in the future by making improvements on our own ovens. In any case, some highlights from the solar cooking effort were discovering how to make a solar omelet (thoroughly preheat the frypan in the oven before adding the egg mixture to achieve a fluffy consistency) and baking a batch of cookie bars for an outdoor yoga class, where the cookie bars went in the oven at the beginning of the class, and were done by the end so that the participants in the class could get a snack before leaving.

NOTICES FROM THE FOUNDATION

Aluminized Mylar plastic is still available in moderate quantities, priced at \$1.00 per sq.ft., for reflectors on a solar collector or solar oven. Contact us giving the quantity needed for your project. We will hope to supply it to you.

Documents on technologies developed by STEVEN Foundation are available in two forms: 1: on our website (see the web address above), and 2: by mail inquiry to our Ithaca address. Queries may be sent by email to jv19@cornell.edu, or to our postal address above.