



JEWISH WORLD WATCH

# Solar Cooker Project

## Best Practices Manual



**SOLAR COOKER PROJECT**

Protecting & Empowering the Women of Darfur 



FIGHT GENOCIDE  
DO NOT STAND IDLY BY



# Solar Cooker Project

## Best Practices Manual

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## INTRODUCTION

Information in this manual is based on the field experience of organizations and individuals supported by the Solar Cooker Project (SCP) of Jewish World Watch (JWW) in Darfur refugee camps in Eastern Chad. The goals of this manual are to help NGOs initiate solar cooker projects in partnership with the SCP in Chad and inspire others to increase the use of solar cooking technology in sun-rich, fuel-starved regions around the world.

A solar cooker is a simple, zero emission device that cooks food and boils water using only the light of the sun. It turns sunlight directly into heat for cooking unlike photovoltaic cells, which convert sunlight into electricity.

Readers are invited to apply the knowledge in this manual to help stressed populations in the developing world, especially those facing forced migration caused by human-made and natural disasters. The adoption of solar cooking technology by thousands of Darfur refugee women in Chad—along with their use of fuel-efficient stoves and retained heat cooking baskets—has dramatically reduced their consumption of fuel and has virtually ended the need for these women and their daughters to travel into the desert to search for firewood.

This manual includes a companion DVD that provides a brief overview of the steps needed to implement a solar cooker project.

*A link to this DVD can be found at: [www.solarcookerproject.org](http://www.solarcookerproject.org)*



## PART 1: BACKGROUND

Since 2003, when war erupted in northern Sudan, over 285,000 Darfur refugees have fled to neighboring Chad to escape the genocide in their country. They settled in twelve UN refugee camps along Chad's eastern border with Sudan. This massive influx of people has created unsustainable environmental pressures in an already arid region. Refugee camps have now become the “largest cities” in eastern Chad, a region that has traditionally been populated with scattered villages of only a few hundred people.

For almost a decade, humanitarian agencies have trucked firewood into these refugee camps for monthly distribution. Although this imported wood is costing donor agencies millions of dollars per year and its collection is decimating forests to the south, it does not provide refugee families with sufficient cooking fuel. Initially women in the camps supplemented their monthly ration by collecting “dead wood”, but when that supply was exhausted, both refugees and local Chadians began to chop down live trees for fuel. In their desperate search for firewood, they have destroyed trees that took decades to grow. Additionally, women and girls who left the safety of the camp to collect firewood were often attacked and raped. This has damaged the fragile sources of groundwater that these trees protected, and it is rapidly turning an already arid land into a barren desert.

In early 2005, Dr. Derk Rijks of KoZon, a Dutch foundation that promotes solar cooking, heard about the massive influx of Darfuris into eastern Chad. He recognized the need to reduce the environmental degradation caused by the unsustainable use of wood for cooking fuel by the tens of thousands of refugees who had flooded into that sparsely populated desert habitat. He was particularly concerned about the gender-based violence suffered by women and girls who had to leave their refugee camps to collect firewood. In partnership with a group of Chadian citizens, Rijks founded a local non-profit, Tchad Solaire, meaning “Chadian Sun”, and introduced the cardboard and aluminum foil





solar “CooKit” into the Iridimi refugee camp (population 18,859) near Chad’s border with northern Sudan.

In May 2006, Jewish World Watch (JWW) adopted this project, named it the “Solar Cooker Project,” and began raising funds to support its expansion. As a result of its successful efforts in Chad and elsewhere in Africa, JWW has become a global leader in the fight against genocide and mass atrocities, engaging individuals and communities throughout the United States to take action.

Following the successful introduction of solar cookers into the Iridimi camp, Tchad Solaire brought this technology to the Touloum refugee camp (population 24,505) in 2007 and the Oure Cassoni refugee camp (population 31,917) in 2008. Solar cooker manufacturing workshops were built in each camp. Refugee women recruited by Tchad Solaire learned new skills and earned money for their families by assembling solar cookers, weaving retained-heat insulation baskets, leading training sessions and conducting follow-up visits to households throughout the camps. When fuel-efficient stoves—provided by international donors or made by the refugees—were used in combination with solar cookers and heat retention baskets, trips outside the camps for firewood were reduced by 86%.\*

The “Solar Cooker Project” in Chad has provided a tangible way to help the tens of thousands of people from the Darfur region of Sudan who were forced to abandon their homes and their country. In partnership with the United Nations High Commission for Refugees (UNHCR), KoZon, and Solar Cookers International, JWW has taken the lead as the key funder and supporter of this project.

In early 2011, JWW expanded its partnership to include Christian Outreach for Relief and Development (CORD—a UK-based NGO working in Chad), to launch a solar cooker project in the Farchana refugee camp (population 21,448). The goal of JWW is to eventually establish solar cooker projects in all twelve Darfur refugee camps in Chad.

*Go to [www.solarcookerproject.org](http://www.solarcookerproject.org) for more information about JWW’s Solar Cooker Project in Chad.*

## Solar Cooker Project Goals

The vision of the Solar Cooker Project is to create measurable impacts that reduce cooking fuel consumption in the refugee camps and provide a safer, more secure and healthier environment for women and children. The successful introduction of solar cooking technology into stressed communities addresses seven of the eight UN Millennium Development Goals. It helps to eradicate poverty by reducing the time and money spent by families to obtain cooking fuel. It frees children from the daily and dangerous task of collecting firewood so they can attend school. It empowers women by providing them with an inexpensive, zero emission cooking technology that gives them more time to spend caring for their families or generating income. Its use reduces childhood respiratory and gastrointestinal diseases, as well as the injuries and deaths caused by burns from the open flames of cooking fires. The reduced exposure of women to cooking smoke along with the dramatic reduction in the need to haul heavy loads of wood improves maternal health. Using a solar cooker whenever the sun is shining dramatically reduces deforestation and erosion. Finally, the introduction of solar cooking technology can be a catalyst for successful partnerships with other community organizations.

\*Solar Cooker Project Evaluation: Iridimi Refugee Camp, 2007, page 4

**JWW’s “Solar Cooker Project” in Chad has provided a tangible way to help the tens of thousands of people from the Darfur region of Sudan who were forced to abandon their homes and their country.**



## Social and Geographic Context

The sun-drenched desert environment where many refugee camps are located is ideal for the introduction of solar cooking technology. The use of solar cookers (whenever the sun is shining) in combination with fuel-efficient stoves (for nights and cloudy days) and retained heat cooking baskets (to keep cooked food hot) can dramatically reduce the consumption of biomass fuel. This is true for the thousands of families living in the camps but it is also true for neighboring villagers, who may want access to these simple renewable energy technologies once they have seen them used in the refugee camps.

Just as many urban dwellers used to consider the microwave oven to be a strange and even dangerous device when it was introduced forty years ago, people in traditional societies may at first be reluctant to accept solar cooking technology. Some will view it as akin to magic or witchcraft, especially those who have always cooked over open wood fires. Even in locations where fuel is in short supply like the desert refugee camps of Eastern Chad, outside trainers should never assume that acceptance of this new technology will be easy, quick or permanent without a great deal of preparation, training and follow-up.

Since energy-efficient methods of cooking are a dramatic departure from the traditional three-stone fire, it is important that NGOs understand the climate, society and cooking habits of their partner communities. Local leaders must be involved from the beginning in deciding which solar and other cooking devices are the most appropriate and affordable for their community. They should also participate in the selection and testing of local foods that will be prepared in the solar cookers.

## Physical And Sexual Assaults On Women And Girls

The burden associated with the collection of firewood is borne almost exclusively by females. In many parts of the world, women and girls must travel increasingly greater distances from their villages or refugee camps to search for fuel. Carrying loads of wood strapped to their backs or balanced on their heads, these women and their daughters are forced to make long and dangerous trips that sometimes last for several days. The fierce competition for scarce resources around refugee camps has frequently erupted into violence, including sexual assault and rape, when local villagers, whose trees are being cut down, attack female refugees searching for firewood. The regular use of solar cookers in combination with other fuel-efficient cooking devices can dramatically reduce the exposure of this vulnerable population to such physical and sexual assaults.



## Building Local Awareness And Fostering Community-Based Solutions

From the beginning of a project, community leaders and early adopters must be involved in the selection and introduction of new cooking technologies. By facilitating community discussions, trainers can help these individuals to come to their own conclusions about local problems (disease-causing cooking smoke, the danger faced by women and girls who gather firewood, and the environmental damage caused by deforestation). If the members of a community and their leaders do not acknowledge that these problems exist, they will be highly resistant to outsiders who try to impose potential solutions.

Community involvement (including men) can result in the rapid acceptance of radical new technologies like solar cooking, as illustrated in this report from a trainer at the April 2011 Jewish World Watch funded Solar Cooker Project training in Farchana refugee camp in Eastern Chad.

“What happened in Farchana, during the first days of training with Solar Cookers International, will remain unforgettable for those who witnessed it. The amazing image of Sudanese men solar cooking in yellow aprons, a sight that would have been inconceivable only a few years ago. These proud desert nomads, who came day after day to assist in the training sessions, put their egos aside in order to learn a crucial survival skill for themselves, their families and their communities—how to cook food and boil water with their region’s most abundant and least expensive source of energy, the sun.”

Sharing information, fostering decision-making skills and supporting the establishment of self-managed neighborhood teams will ensure that a community eventually takes ownership of a project and keeps it going. Developing a high level of trust and cooperation with the local population also helps promoters avoid any “cultural pitfalls” which can slow down or even sabotage the success of a project.





## PART 2: SOLAR COOKING BASICS

*This manual will focus on the cardboard and aluminum foil panel CookIt, which is used by thousands of Sudanese families in refugee camps in Eastern Chad. **Appendix A** contains detailed instructions on how to use a solar cooker. (For maximum energy efficiency, all solar cookers should be used in combination with retained heat cookers).*

### How Solar Cookers Work

Cost free, zero-emission sunlight is the only fuel needed for a solar cooker. Unlike far more expensive photovoltaic panels, solar cookers do not generate an electrical current. They instantly convert the light of the sun into solar thermal heat for cooking. Access to direct sunlight and protection from strong winds are all that is needed for the efficient operation of a solar cooker. Some solar cookers work even in cold weather. At night and on cloudy days, a solar cooker must be safely stored and a fuel-efficient stove used for cooking.

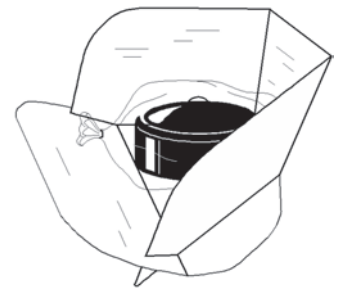
### Types of Solar Cookers

There are three types of solar cookers: panel, box and parabolic. They vary in size, weight, cost, durability, portability and cooking time. Solar panel and solar box cookers use an enclosed space, a transparent cover and a black pot to capture, absorb and concentrate infrared light and convert it slowly and evenly into heat all around the pot. Light colored cooking pots will not work in these solar cookers because their shiny surfaces reflect rather than absorb sunlight. Parabolic solar cookers quickly generate intense heat for frying and boiling by focusing a single beam of light on the (black) bottom of a cooking pot.



## Panel Solar Cookers

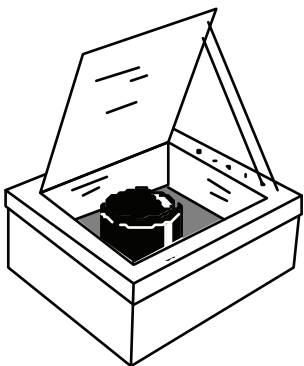
The panel cooker is the least expensive type of solar cooker. It is designed to reflect sunlight over the entire surface of a lightweight cooking pot painted black on the outside with non-toxic paint. It can reach temperatures up to 250°F (121°C). The inexpensive cardboard and aluminum foil solar CookKit, which resembles an open clamshell, is the most widely used of all panel cookers. It is the model manufactured and used by thousands of Darfuri women in refugee camps in Eastern Chad. The CookKit is also being used in other countries including Kenya where efforts have been initiated by Solar Cookers International to create a self-sustaining market for this technology.



The price of a CookKit will depend upon the type of cardboard, foil and glue used in its construction. The CookKit can be folded into a 30 x 30 cm (12 x 12 inch) square for easy transportation and storage, making it an ideal design for stressed, mobile populations. Most CookKits currently used in Chad are made with inexpensive cardboard, which must be protected from moisture. More durable (and more expensive) waterproof CookKits have been produced in other countries using Mylar-coated plastic that resists moisture and can last for several years. Research to develop a more affordable, more durable CookKit is ongoing.

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Women can leave food to simmer for several hours in a CookKit while they sit in the shade and do other chores. Men in some Darfur refugee camps use the CookKit for making their tea during the day. Since there is no fire danger or risk of burning the food, small children can be left alone to tend the CookKit, which only requires a slight rotation every hour or two to track the movement of the sun. In equatorial desert regions, rice, peas and cornmeal can be cooked (starting at around 9 a.m.) in 60 to 90 minutes. Meat can be cooked in two to three hours, and beans in three to four hours. When introducing this new technology, trainers must repeatedly demonstrate all of these points and provide long term follow up to ensure that women in the community have made solar cooking a permanent part of their daily routine.



## Box Solar Cookers

This type of solar cooker consists of an insulated box made of cardboard, wood, metal or plastic. It is painted black on the inside and has a large glass or Plexiglas window on top to let in sunlight. Just like panel cookers, box cookers can be left unattended in the sun for hours to cook food and pasteurize water. There is no danger of burning the food. Box solar cookers only need a slight adjustment to track the sun every few hours. They are bulkier than panel cookers, but most can hold more than one pot, are more durable and can reach temperatures up to 350°F (177°C). Some solar box cookers have aluminum reflectors on the outside to direct even more sunlight into the box. There are hundreds of thousands of box cookers in India alone. Box cookers are made in the United States, Spain, Germany, Bolivia, South Africa, Kenya, the Dominican Republic,

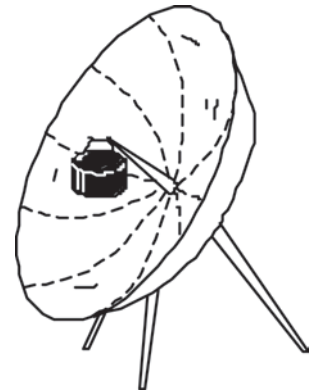
Senegal, Afghanistan and other countries. Although some box cookers are produced in factories, they are also easy to make with local materials.

*Basic construction plans for solar box cookers are available on Solar Cookers International's website, [www.solarcooking.org](http://www.solarcooking.org).*



## Parabolic Solar Cookers (Curved concentrators)

Parabolic solar cookers operate at a much higher temperature than panel and box cookers. They focus a narrow beam of sunlight on the bottom of a cooking pot that sits on a metal stand. This light instantly generates temperatures as high as 450°-500°F. (232°-260° C), which is as hot as an open fire or a gas burner. Although parabolic solar cookers require regular adjustments to track the movement of the sun, they can be used from sunrise to sunset even in freezing temperatures. Hundreds of thousands of families in China and India use parabolic solar cookers for cooking food and boiling water whenever the sun is shining. Large institutional parabolic reflectors like the Prince and the Scheffler are used for cooking in community kitchens at schools, health centers, bakeries and orphanages.



## The Benefits of Using Solar Cookers

Solar cookers can be life-saving devices for people in sunny but fuel-scarce regions. In desert settlements like the Darfur refugee camps in Eastern Chad, where the sun shines most days of the year, the use of solar cookers, along with fuel-efficient stoves and hay baskets (see page 10), has virtually eliminated the need for women and girls to make long and dangerous trips away from their camps to search for firewood.

### Solar cookers save money and fuel

Free sunshine is available most days of the year in countries located within thirty degrees north and south of the equator. Solar cooking on sunny days allows families to save scarce wood, charcoal, dung or gas for use at night and on cloudy days. Some urban residents spend 30-50% of their income to buy cooking fuel—mainly charcoal or Liquefied Petroleum Gas (LPG). Many impoverished governments currently use a significant percentage of their budgets to subsidize imported LPG and kerosene. If their citizens had access to solar cooking technology, they could dramatically reduce their consumption of wood, dung and charcoal and the need for subsidized LPG.

### Solar cookers save time

With box and panel solar cookers food can be left unattended to cook while women do other work indoors or in the shade. Since food will not burn in box and panel solar cookers, no stirring is necessary. Pots are easy to clean because food doesn't stick—an important factor in regions where water is scarce. Parabolic solar cookers, which instantly generate the intense heat of an open fire, can boil a pot of water in 15 to 20 minutes.

### Solar cookers can be made from locally available and recycled materials

Solar cookers can be made using a variety of materials, including wood, glass, cardboard and sheet metal available in local markets.

### Solar cookers are safe, healthy and convenient

With solar panel and solar box cookers there is no fire hazard. Although parabolic solar cookers do generate very high temperatures, they (like box and panel cookers) consume no fuel and they produce no smoke to irritate the eyes, nose and throat or cause respiratory disease. Panel and box solar cookers cook food slowly at between 250°-350° F (121°-177°C) ideal temperatures for retaining nutrients, moisture and flavor. Due to worldwide fuel shortages, some families are being forced to reduce their consumption of nutritious beans and legumes that require lengthy cooking and extra fuel. When women are able to solar cook on sunny days, their homes, kitchens and courtyards remain smoke-free and they can afford to prepare healthier, slow cooked foods.



### **Solar cookers can kill disease-causing organisms in water**

These organisms which can cause diarrhea and which result in the deaths of tens of thousands of children every year can be killed by heating water in a process called pasteurization. Water that has been heated to 149°F (65°C) for a short period of time is pasteurized and is free from microbes including Escherichia coli, Rotaviruses, Giardia and the Hepatitis A virus. Women who have limited access to fuel can pasteurize several liters water on a sunny day with a solar cooker. If provided with an inexpensive, reusable Water Pasteurization Indicator (WAPI), women can be sure that water they leave to heat unattended in a solar cooker has reached pasteurization temperature and is safe to drink. WAPI's contain a soy-based wax that melts at 65 degrees centigrade and drops to the bottom of a clear, sealed plastic tube, which can be flipped over and reused for years.

### **Traditional foods can be prepared with solar cookers**

All traditional foods can be cooked using one of the three types of solar cookers: parabolic, panel or box. Each type of solar cooker can be constructed in different sizes with designs that can be adapted to local cooking requirements.

### **Solar cookers are easy to transport**

The great advantage of offering the CookKit to stressed populations is that it can be folded up for easy storage and transport. On sunny days, farmers and herders can carry a CookKit, a small pot and raw ingredients with them into the field to cook a hot lunch without the need to build and tend a fire.

### **Using solar cookers preserves trees, the atmosphere and the soil**

Almost three billion people still cook every day over open fires. The increased use of solar cookers will help address several of our planet's most pressing environmental problems — black carbon air pollution and the massive deforestation and erosion caused by people cutting down trees to fuel their cooking fires and make charcoal.



### Retained Heat Cookers – “Hay Baskets”

A “retained heat cooker” can keep a hot pot of food simmering for several hours with no fuel. In this manual, we use the term “hay basket” to describe a well-insulated container. Other names include: “heat retention basket,” “fireless cooker,” “hay basket,” “hay box” or “wonder box.”

A hay basket is easy to make and use. Food can be cooked during the afternoon in a solar cooker and kept hot for 3-4 more hours inside a well-insulated hay basket. This combined method of cooking allows a solar cooked meal to be served steaming hot after dark.

Food can be cooked during the afternoon in a solar cooker and kept hot for 3-4 more hours inside a well-insulated hay basket.

Hay baskets can also augment fire-based cooking by simmering fire-cooked food for several hours. After a pot of food is boiled on an open fire for no more than thirty minutes, it can be covered with a lid and put immediately into an insulated hay basket where it will continue to cook and will stay hot for several more hours. Food left to finish cooking in a hay basket normally takes one to two times the normal stove-top cooking time, but with no additional fuel and no emissions. This is an important part of a comprehensive strategy for fuel-efficient cooking.

#### Retained-Heat Cooking Times – Approximate

FOOD	SIMMERING TIME	HAYBOX TIME
White rice	5 minutes	1–2 hours
Brown rice	10–15 minutes	2 hours
Potatoes, whole white	5–10 minutes	1–2 hours
Creamed Soups	2 minutes	1 hour
Dried beans, etc., soaked	10–15 minutes	3–4 hours
Meat roast	20–30 minutes	3–5 hours





Hay basket containers can be made with woven baskets, cardboard or wooden boxes, rice bags, plastic garbage bags or even by digging a hole in the ground. Materials that can be used to provide 6 inches (15 cm) of insulation around the cooking pot (top, sides and bottom) include: crumpled newspaper, cardboard, dried grass or leaves, discarded aluminum foil, rice husks, feathers, straw, cotton, wool or any other non-toxic insulating material. This material should be stuffed into a cloth bag to keep it from coming out of the container.

To protect the insulating materials from spills and humidity, the space where the hot cooking pot is placed should be lined with heat resistant plastic or foil. Mylar, which can be salvaged from used food storage containers, juice boxes, chip bags, balloons, or other items will provide a more durable inner layer than aluminum foil. The insulating materials should be kept dry since they will be less efficient if they are damp or wet. The hay basket should be closed with a cushion or insulated lid to keep heat from escaping. The lid of the cooking pot should also create a seal that does not allow heat or moisture to escape from the hot food.

Another advantage of hay basket cooking is apparent on cloudy days when cooks need to prepare multiple items for a meal but may have only one source of fire. For example: a woman can bring a pot of meat or beans to a boil over a fire for 15-25 minutes and put it in a hay basket to finish cooking. Next she can bring a pot of rice to a boil for 5-10 minutes and put it in another hay basket, where it can continue to cook. Finally vegetables or sauces can be prepared over the open fire. At the end of this process, the cook will have three uniformly hot, unburned still-moist dishes ready to serve to her family.

*Note: Meat dishes, which cannot be consumed within three hours of being cooked, should be re-boiled before serving.*

## Using Integrated Cooking To Reduce Fuel Consumption

In **Appendix B** you will find suggested cooking schedules for the integrated use of a solar cooker, a hay basket and a fuel-efficient stove. These schedules, which assume that a family has only one CookIt, are based on guidelines developed by KoZon in the Netherlands. They can result in a dramatic reduction in fuel consumption. For decades, women in developed countries have utilized several cooking devices for speed and fuel economy (gas stoves, hot plates, microwaves, toaster ovens, crock pots, coffee makers). Women in refugee camps have shown that they can do the same with solar cookers, hay baskets and fuel-efficient stoves.

*Solar Cookers International has provided the material in this manual on solar cooking technology. For additional information, go to Solar Cookers International's website: [www.solarcooking.org](http://www.solarcooking.org) for details on the different types of solar cookers, an illustrated step-by-step "Teaching Solar Cooking" trainers' guide for the CookIt, construction plans for different types of solar cookers, news stories about solar cooking, recipes, videos, and country-by-country project information.*



## PART 3: INITIATING A SOLAR COOKER PROJECT

### Key Points To Consider When Introducing a Solar Cooker

People in traditional societies, like people everywhere, may be resistant to change. A woman's daily cooking routine, no matter how inefficient, is not something she will be willing to give up or modify without a good deal of persuasion.

Because women will continue to use other methods to cook their food, it is important to present solar cooking not as a replacement for traditional cooking methods but as a complement to these methods. Over time, as village women become engaged in the process and aware that they are using less fuel, their cooking habits will begin to change.

Although solar cookers may seem to be simple technologies that people in fuel-starved regions should want to use, it is likely that women in traditional cultures will perceive them as strange devices that might make their lives even more difficult. It is important to understand that women, who have always cooked over three-stone fires, may initially feel intimidated by this technology. They may worry about whether they will be able to operate their solar cookers correctly and they may be reluctant to express these worries in public. Facilitated, open-ended discussions will allow them to share their concerns with trainers and their neighbors in order to come up with group solutions.

Women may have valid concerns that food will taste different when cooked over stoves that do not produce smoke. They may also worry that their husbands and children will not like the food. Embracing this radical new technology (despite its health, environmental and economic benefits) can be an enormous challenge for them.



A good example of a dish that initially raises these concerns is a maize (corn) meal dish known also as ugali, sadza or “la boule”. Maize, a popular staple food in Africa, is eaten with a variety of sauces. The dried meal is traditionally cooked in a boiling pot of water over an open fire and stirred rapidly to keep it from sticking to the bottom of the pot and burning. It has the consistency of thick mashed potatoes. When made in a CookKit, the maize is mixed with cold water and left to gently simmer in the sun for 60 to 90 minutes. After cooking, the mixture resembles a smooth polenta, an unfamiliar sight to African women. However, with a few vigorous strokes of a wooden spoon, the hot, solar cooked maize, which tastes just like boiled maize, will have the familiar whipped texture of mashed potatoes.

School age children are among the best candidates for training and demonstrating solar cooking technology since they seem open to new ideas and they love competition. Solar cooking can be introduced as part of their science classes in school. This is currently the case in some Darfur refugee camps in Eastern Chad.

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It is essential to allow sufficient time for cooking trial and error—initially with small, representative groups in a new community—before proceeding with the large-scale introduction of solar cooking technology. Motivated teams of women should be selected for training from each sector of a village or camp. They will be the ones to carry out follow-up training, solve problems, monitor local usage, conduct periodic demonstrations and provide repair services.

Women must see solar cookers in operation and have the opportunity to serve solar cooked food to their families before they will be willing to adopt this new technology. Since they will not risk ruining their own food supplies, it is essential that trainers provide ingredients and close supervision during the introductory phase. A neighborhood or village festival where everyone can sample solar cooked food is an excellent way to introduce the concept to the whole community and allow family members to taste the food before the mother brings a solar cooker into their home.

If the families of community leaders are observed using solar cookers, the rest of the community is far more likely to copy this behavior.

In some locales where women and girls still gather wood, their labor is not considered to have intrinsic economic value. Also the gradual erosion and deforestation occurring around a village may be seen as inevitable or its consequences poorly understood by the community. It is essential to engage local male and female leaders in discussions of these issues with the rest of the community to ensure that everyone understands the long-term implications of their current cooking practices. If possible, regional and national leaders must also be involved in conveying this message to the public.

A note about for-profit vs. subsidized solar cooker projects: due to the extensive initiation, training and follow-up required to educate traditional populations to change their cooking habits, the likelihood of a totally independent, for-profit solar cooker venture is small at this time. (The same is true for fuel-efficient stove ventures.) In the foreseeable future, assistance with research, manufacture, distribution, advertising, micro-finance, carbon credits, training and follow-up will have to come from outside sources. However, as biomass and fossil fuel supplies continue to increase in price and decrease in availability, and as solar cooking technology becomes more well known around the world, it will likely be possible to establish unsubsidized profit-making enterprises.



It is important to be sensitive to the fact that the widespread use of solar cookers, hay baskets and fuel-efficient stoves may be viewed as a threat to the livelihoods of those who harvest wood and make charcoal for sale. In some cases, these are small family-operated enterprises. Elsewhere they are lucrative, large-scale operations that have the support of regional and national officials. NGOs should be prepared for possible resistance from this sector and should always frame the introduction of solar cookers and other energy saving cooking technologies as opportunities to create new businesses, new jobs, generate income and save money.

Among humanitarian and development organizations working to promote clean cooking devices, there is still a sense of competition as each group tries to promote their device as “the” solution to deforestation and smoky kitchens. Since solar cooking alone cannot meet all domestic cooking requirements, it is important for solar cooker promoters to form partnerships with fuel-efficient stove promoters and to always present solar cooking as part of an integrated cooking system.

### Starting a Solar Cooker Project

The first step when initiating a solar cooking project in a new location is to schedule meetings with small groups of community leaders, teachers and early adopters. The most effective way to reach these individuals is by partnering with an organization that is already established in the community. At these meetings you can begin to create “solar cooking” awareness. Use these initial consultations to learn about traditional foods and cooking methods, local access to cooking fuel, and health and environmental concerns. The next step is to schedule a follow-up meeting with this group to demonstrate a variety of solar cookers using local recipes and ingredients. (Purchase the ingredients at the local marketplace accompanied by one of the people who will attend the meeting.)

**It is important to involve a small group of leaders in the initial decisions about which type of solar cooker will work best and be most affordable.**

It is important to involve a small group of leaders in the initial decisions about which type of solar cooker will work best and be most affordable. These are the individuals who will be able to persuade the rest of the community to adopt this cooking method. Another key to the successful introduction of solar cooking is to present this technology as part of a trio of energy-saving devices including fuel-efficient stoves and hay baskets. Solar cookers should never be introduced as the sole replacement for a three-stone fire.

*Note: For illustrated, step-by-step lesson plans on teaching the use of the Cookit including: recommended materials, exercises and classroom layout, go to [www.solarcookers.org](http://www.solarcookers.org) and click on ‘Promoting solar cooking’.*

**Be prepared.** If you do not have experienced solar cooking experts on the staff of your organization, you can contact Jewish World Watch or Solar Cookers International for information on how to find expert consultants to provide you with in-house training on solar cooking technology. It is critical that your trainers are knowledgeable and prepared before they approach community leaders. Since your target audience may be skeptical or even suspicious at first, their buy-in will be critical to your project’s eventual success.

**Conduct a baseline study.** In order to have baseline data with which to measure the long-term success of your project, it is essential to conduct a survey of current firewood usage (and if possible of respiratory and water borne diseases) before introducing any new cooking technologies. If the baseline and post-project assessment data are compiled and analyzed by an objective third party source, it is more likely that international donors will accept your final results as valid. Estimates for these surveys should be factored into your initial budget. Ensure that community leaders understand



why you are conducting the surveys and ask them to communicate this information to the target population (since some people will consider questions from outsiders about their cooking habits as an intrusion).

**Develop a realistic budget.** When raising funds for your project you should budget for a program that can run for up to five years. A permanent change in cooking habits will not happen overnight. It will require several years of training, monitoring, empowering local leaders, follow up, assessments and continuous adjustments during the life of the program.

A paid professional staff should be hired to monitor your budget, the manufacture and distribution of materials, the training of trainers and project assessments. Budgets should include realistic projections for the cost of: purchasing, shipping, manufacturing, storing, distributing and repairing (or replacing) solar cookers.

In some locations in Sudan, heavy-duty, waterproof (but more expensive) CookKits are shipped in fully assembled and distributed to local families. In the refugee camps in Eastern Chad, cardboard, foil and glue are shipped to the camps along with heat resistant plastic bags. Refugee women are hired to assemble the solar cookers, sew carrying bags and weave and stuff hay baskets.

Some organizations may want to charge families a small fee for their solar cookers (either in cash or in labor) since in many societies something that is free is considered to be of little value or consequence.

**Show respect for local customs.** Solar cookers should be presented as complementing traditional cooking practices. Acknowledging local values, customs, and traditions will make your audience feel respected and will make them more willing to consider accepting new ways of doing things. Since traditional three-stone fires may still be used early in the morning, after dark, on cloudy days or on those occasions when unexpected visitors arrive, it is far more effective to integrate the new cooking methods with existing ones. Always remember that the ultimate goal is to keep women and girls safe at home, save fuel and reduce the smoke from cooking fires.





**Encourage audience participation.** People used to authoritarian (top-down) methods of instruction, may be initially reluctant to participate in group activities or ask questions. If possible keep your groups no larger than fifteen people and seat them in a circle rather than in rows like a classroom. In some cultures it will be necessary to speak to men and women separately. One way to engage people in conversation is to start a discussion about the dangers related to firewood collection and the cost of purchasing fuel in the market place. Ask women to talk about what they like and dislike about cooking over an open fire. Ask them to discuss the danger for small children who can be burned by cooking fires. Invite them to tell their own stories about these issues.

**Use audio-visual materials.** Have your audiovisual materials pre-tested with a local audience, organized and ready for presentation. Be sure they are culturally appropriate for your audience. AV materials can include films, enlarged photos, drawings, and illustrated (comic) books. Demonstrations can also be filmed (with the permission of participants) and turned into short videos to be shown in nearby communities where it may not be feasible to send local trainers. Recent studies have shown that such videos featuring local leaders demonstrating a new technology in the local language and in a familiar setting can be as effective in changing behavior as live demonstrations.

**Utilize local, regional, national, religious or other cultural events to promote solar cooking.** Since most social occasions involve the serving of food, these events can provide excellent opportunities to introduce solar cooking into a community. This should always be coordinated with community leaders to ensure the foods served comply with local cultural and religious traditions. These foods should be tested in advance with a small group before demonstrating them at a public event. Solar cooking can also be introduced in conjunction with activities that raise awareness about violence against women and girls, the protection of the environment, access to education and health issues.

**Always present solar cooking realistically and in the context of an integrated system.** Miracles should not be promised with solar cookers. They have their limits and these should be acknowledged from the start. Solar cooking is only part of the solution to reduce fuel consumption and smoke from cooking fires.



**Cook a diversity of local dishes with local ingredients and be prepared for some “flops.”** Ensure that solar cooking demonstrations always utilize local foods and ingredients. When demonstrating solar cooking, diversify the meals. If the same foods are always cooked (tea and rice) the audience will come to believe that solar cookers can only cook these two dishes. It is also important to use the inevitable solar cooking “flops” as occasions to learn and adjust timing and ingredients rather than as a reason to reject the technology.

**Emphasize that solar cookers require care and maintenance.** The durability of a solar CookIt will depend upon keeping it clean and safely stored when it is not being used. After each use, the CookIt should be wiped clean, dried and stored in a sheltered, suspended location. The heat resistant plastic bags will last longer if they are turned inside out after each use, wiped dry and safely stored away with the CookIt.

**Cooking with the sun can be a cause for celebration especially when people eat their first solar cooked meal and realize that delicious food really can be cooked with sunshine.**

**Organize short plays or skits.** Getting your participants involved in performing sketches is an enjoyable and powerful way to educate and sensitize them about the message you are trying to convey. Skits about solar cooking can be presented while an audience is waiting for meals to be solar cooked. In most groups, there are always a few individuals who love to perform. Children also love to play roles in skits, especially when they can pretend to be adults. Local trainers can make up skits based on the issues of concern to the target audience. Skits should be short, simple and focused on conveying a single key message. **Appendix C contains three sample skits.**

**Have fun!** Cooking with the sun can be a cause for celebration especially when people eat their first solar cooked meal and realize that delicious food really can be cooked with sunshine. Adults, just like children, always learn faster and retain more information if they are enjoying themselves throughout the training process.

## Common Questions and Concerns About Solar Cooking

### Does it Take Longer to Cook Food with a Solar Cooker?

Cooking with solar panel and solar box cookers may seem slow when compared to cooking over an open fire. Unlike an open fire, however, these two types of solar cookers can be left unattended for hours to cook beans, rice, legumes, meat, bread and other foods (without consuming fuel, producing smoke or creating a fire hazard). It is important to acknowledge when comparing the actual cooking times of solar vs. wood stoves that in order to cook with a wood fire a woman must: leave her village to search for trees; chop them down; cut them up; carry the wood home; cut it up for her fire; build and light the fire; wait until the fire is hot enough to start cooking and then tend the smoky fire throughout the cooking process to make sure that her children don't get burned or that the food doesn't overcook. Charcoal is faster, but it must be purchased, and somewhere someone had to chop down and render seven to ten kilos of wood in order to produce one kilo of charcoal.

**In order to cook with a wood fire a woman must:**

- Leave her village to search for trees
- Chop them down and cut them up
- Carry the wood home
- Cut it up for her fire
- Build and light the fire
- Wait until the fire is hot enough to start cooking and then tend the smoky fire throughout the cooking process to make sure that her children don't get burned or that the food doesn't overcook.

*Note: The harvesting of trees for charcoal is now the greatest cause of deforestation in Africa. The country of Haiti has lost almost all of its trees to the charcoal industry.*



When these points are discussed with your target audience, their perceptions about how long it takes to solar cook will begin to change. It is also important to point out that from sunup to sundown on a clear day, a parabolic solar cooker can instantly generate the intense heat of a fire under a cooking pot even in sub-zero weather, with no smoke and using no fuel! Finally it is essential to show women how they can shift certain pots from a solar cooker to a fuel-efficient stove to a hay basket depending upon the weather and the type of food they are cooking. (**Appendix C** contains recommended integrated cooking schedules.)

### **Do I need to add water to foods that will be solar cooked?**

The solar panel Cookit and the solar box cooker can simmer vegetables, fruits, fish and meats without water, since these foods will cook slowly in their own juices. Water, which tends to reduce nutrients, should not be added to these foods when using panel or box solar cookers. When cooking rice, dried grains, legumes and beans, add just enough water to cover the beans or grains. If soaking dried beans overnight, use water for cooking. Eggs can be hard cooked without water by placing them on the lid of the black cooking pot inside the plastic bag. If solar cooked beans or grains come out underdone, too moist or too dry the first time, you can adjust the amount of water or the cooking time. Experimentation and adaptation in the preparation of local dishes is essential. For this reason, women will need a lot of support and guidance during the early phases of your project. Solar cooking is a radical technology leap for women accustomed to cooking over a three-stone fire. It will require patience and practice until they are comfortable with their new method of cooking. Be sure to provide extra food and build in enough time for trial and error during your training program.

*Note: If using a parabolic solar cooker you will need to add the same amount of water you would add when cooking over an open fire.*





### **Can the solar cooker be used as an economic development project?**

Yes. Solar panel CookKits can be manufactured locally, with minimal training, for sale in local markets. CookKits can also be used to make sweet cakes (a luxury food in many parts of the world), which cannot be baked in a pot over an open fire. These cakes can be sold to neighbors or in local markets. Both of these activities can be used to generate income during the day when women and girls would normally be tending their cooking fires or traveling great distances away from home to gather wood. Another income generating activity is weaving and stuffing hay baskets for sale. Women in Darfur refugee camps have used the free time they have while their food is cooking in the sun to earn extra money by tending their gardens, braiding hair, making clay pots or weaving baskets.

### **How can I use my solar cooker when there is no sun?**

You cannot solar cook when there is no sun. Solar cookers can cook food and boil water only on clear sunny days. In a desert region that will be more than 300 days per year. At night and on cloudy days, a fuel-efficient stove should be used for cooking and heating water.

### **Solar cooking is too radical a technology for traditional people.**

In 2005, when Dr. Derk Rijks introduced solar cooking into the Iridimi Darfur refugee camp in Eastern Chad, several representatives of major humanitarian organizations were certain that it would not be accepted. They argued that it was important to respect and preserve the traditional, fire-based cooking habits of the Sudanese refugees.

Despite these objections, Rijks and his Tchad Solaire team launched a solar cooking pilot-project in Iridimi refugee camp. Through trial and error, they developed a successful partnership with refugee women and the leaders of the refugee community. The expanding use of solar cookers, heat retention baskets and fuel-efficient stoves in Darfur refugee camps has demonstrated that Sudanese women are ready, willing and able to change their cooking habits and adopt these new technologies.

## **Sustaining and Expanding a Solar Cooker Project**

**Empower local teams to continue the spread of solar cooking.** Local women should be trained and compensated to conduct neighborhood demonstrations and long-term follow-up. These neighborhood teams should have the resources to repair or replace worn solar cookers. Women will quickly revert to their three-stone fires if their solar cookers become damaged and they have no way to fix them. In traditional societies where hierarchy is paramount, it is also essential to foster the open exchange of information between your local management staff and neighborhood outreach workers (who may otherwise be reluctant to report problems they are observing in their assigned sectors). There should be regularly scheduled follow-up sessions for the women on these teams. During these sessions they can turn in their survey sheets, share any problems they have encountered and pick up supplies.

**Maintain a system of internal monitoring and consistent record keeping.** Neighborhood teams should routinely monitor and keep written records on the use of solar cookers in households in their designated sectors. These records should be monitored and analyzed by staff on a continuous basis. Maintaining concise records will be important for future fundraising efforts and it will provide critical data for independent evaluators hired to assess the effectiveness of your solar cooker project. *Appendix D contains a sample daily Follow-up Sheet.*



**Form partnerships with field organizations.** Cultivate new partnerships and cooperative programs with organizations in your region that already have local networks, staffs, offices, storage space, vehicles and programs. Because solar cooking addresses so many community needs, these could include governmental and non-profit organizations that support educational, environmental, reforestation, wildlife conservation, health, women’s empowerment and many other causes.

**From your base in refugee camps, reach out to the local communities in the area.** If financial resources permit, you can increase local good will by having refugee women, who are trained in solar and retained heat cooking, introduce these techniques to women in surrounding villages. People in small, traditional settlements near refugee camps sometimes feel overwhelmed and resentful of the tens of thousands of refugees who have crowded into camps near their villages. Outreach of this type can reduce resentment, build good will and improve the lives of local women.

**Every solar cooked meal will help to make the world a better place!**



## ABOUT THE SOLAR COOKER PROJECT AND JEWISH WORLD WATCH

The **SOLAR COOKER PROJECT** of Jewish World Watch is committed to protecting refugee women and girls from rape and other forms of violence. Women and girls who have fled the genocide in Darfur, Sudan are particularly vulnerable while performing the critical task of collecting firewood to cook their meals. Our primary mission is to reduce the frequency of these heinous crimes by providing women in the refugee camps with a powerful alternative cooking option—the solar cooker.

[www.solarcookerproject.org](http://www.solarcookerproject.org)

**JEWISH WORLD WATCH** is a leader in the fight against genocide and mass atrocities, engaging individuals and communities to take local actions that produce powerful global results. Founded in 2004 by Rabbi Harold M. Schulweis and Janice Kamenir-Reznik as the Jewish response to the genocide in Darfur, it has grown from a collection of Southern California synagogues into a global coalition that includes schools, churches, individuals, communities and partner organizations that share a vision of a world without genocide. JWW bears witness to first-hand accounts in conflict regions, partners with on-the-ground organizations to develop high-impact projects that improve the lives of survivors, help build the foundation for a safer world, and inspire our communities to support tangible projects and advocate for political change.

[www.jww.org](http://www.jww.org)



## APPENDIX A: TIPS FOR USING A SOLAR COOKER

- Cut food into small pieces.
- Vegetables, meat, fish and fruits can be cooked without using any water.
- Soak beans overnight and just barely cover them with water when cooking. (Pinto beans, lentils and split peas do not need to pre-soak).
- Too much water slows the cooking process.
- Rice and lentils should be cooked with water just covering the food.
- Use a lightweight metal pot with a lid. It should be blackened on the outside with non-toxic paint. A wide, shallow, cooking pot will heat food faster than a tall, heavy pot.
- Fill the cooking pot up to 2/3 with raw ingredients (beans, peas, rice, meat, sauce), replace the lid and put the pot inside a transparent, heat-resistant plastic bag.
- Place a metal pot stand, three small sticks or three small rocks inside the bag, under the pot to raise it up a few centimeters and allow hot air to circulate under it during cooking. Seal the bag tightly with a string. Place the bag and pot in the center of the Cookit. Don't allow too much air space between the pot and the plastic bag.
- One plastic bag can be used 15-20 times to insulate a cooking pot before it develops tears or holes. After each use, the plastic bag should be turned inside out, wiped clean, dried and stored in a safe place with the Cookit.
- Place rocks on the side flaps of the Cookit to keep it from shifting in the wind. If the Cookit has grommets in the front and back flaps, tie strings through the grommets and attach them to large rocks for even more stability.















- On sunny days in a desert region like Eastern Chad, cooking can begin after 9 o'clock in the morning and can continue until around 16:00 hours. This allows a cook to prepare two hot meals per day using only the light of the sun.
- The angle of the sun can be checked using your shadow or the shadow of a stick. If your shadow is taller than you are (or if the stick's shadow is longer than the stick) then the sun is too low in the sky for efficient solar cooking.
- Choose a convenient sunny cooking location that is sheltered from the wind. Set the CookKit on a dry, level surface in direct sunshine away from potential shadows. The CookKit can be left on the ground, on the roof or on a table—since the reflectors do not get hot and there is no fire danger.
- Stand behind the CookKit and point the reflective side toward the sun. Lower or raise the flap in front to minimize the shadow on the pot. The flap should be lower when the sun is low in the sky and higher at midday to ensure that the maximum amount of sunlight is hitting the pot.
- Do not look at the sun to aim your CookKit. While you are standing behind the CookKit, look at its shadow make sure it is even on both sides. For maximum cooking efficiency, adjust the CookKit every hour to keep it pointed directly at the sun.
- Many factors affect the speed at which food cooks in a CookKit. These include the cleanliness of the reflector and the plastic bag; the time of year; the time of day; the angle and intensity of the sun; the wind; your latitude; the type of pot being used; and the amount and size of the pieces of food being cooked.

### Cooking Efficiency

OK	NOT OK
The sun high in the sky	The sun low in the sky
No clouds	Partly cloudy
No wind	Much wind
Black pots with lid	White or shiny—no lid
Max 5 liter, light weight pot	Large, heavy pot
Small quantity—small pieces of food	Large quantity—big pieces of food
Little or no water added	Too much water

*The KoZon Foundation created these illustrations. They provide rough guides for cooking times, sun angles and food quantities when using the CookKit.*



	Faster cooking	Slower cooking
<i>Time of year and day:</i>		
<i>Amount of sun:</i>		
<i>Amount of wind:</i>		
<i>Thickness of pot:</i>		
<i>Amount and size of food:</i>		
<i>Amount of water:</i>		



## Cooking Times

Do not open pot and stir food while it is cooking. Start early to allow time for cooking  
Approximate cooking times for 4 pounds (2 kilos) of food on a sunny day:

1–2 hours	3–4 hours	5–8 hours
Eggs	Potatoes	Large roasts
Rice	Vegetables (roots)	Soup and stew
Fruit	Some beans, lentils	Most dried beans
Vegetables (above ground)	Most meat	
Fish	Bread	
Chicken		



## APPENDIX B: RECOMMENDED INTEGRATED COOKING SCHEDULES

*This list is based on guidelines developed by KoZon in the Netherlands.*

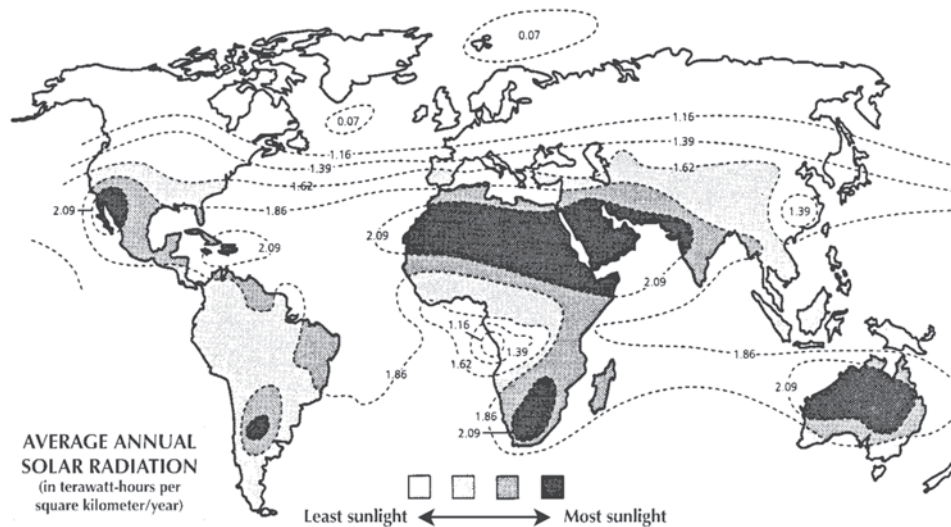
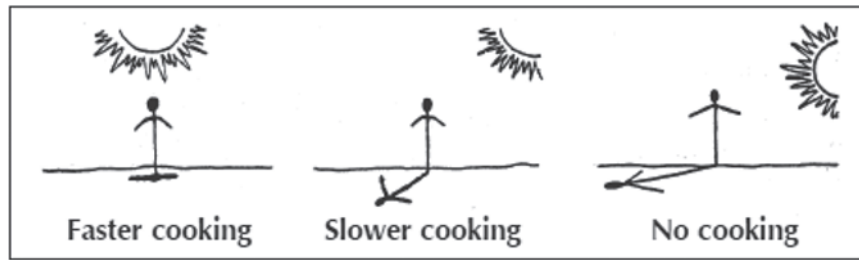
### Bright cloudless sky all day

**Breakfast**—In the morning, eat unheated solar cooked food (but not meat) from the day before. Heat water for tea over a fire (if the sun has not risen) and put the fire out after the water is hot. When the cooking fire is extinguished, keep the pot of hot water in a hay basket to use for tea later in the morning. If you use a three-stone fire to heat your water, put one or more of the hot stones inside the hay basket with your teapot to retain even more heat. If you have a parabolic solar cooker and the sun is up, use that device to heat your water.

**Lunch**—By 8:30 in the morning the first pot of food (such as slow cooking beans) should be in the Cookit and placed in a spot where the sun will shine all morning. The Cookit should be shielded from the wind or anchored to the ground with rocks and string. It should be rotated every one to two hours to maximize direct exposure to the sun. Young children can be left to watch the Cookit since the reflector does not get hot and since it presents no fire danger. It can also be placed on a table or even tied onto a low, flat roof to keep animals away. After 1½-2 hours of cooking, the first pot can be placed in a hay basket to continue cooking, while a second pot (of sauce, rice or water for tea) is started in the Cookit. Everything should be ready—and hot—for the lunch meal.

*Note: On sunny days in equatorial regions, very slow cooking foods like dried beans can be put in a solar Cookit in the morning (in a place that is safe from animals and wind), aimed to face that part of the sky where the sun will be at noon, and left alone all day. Food will be cooked and still warm at the end of the day. For food safety reasons, meat should not be left to cook all day without turning the Cookit several times to maintain maximum solar exposure and maximum heat.*





**Evening meal**—Start cooking food for the evening meal in the CookKit as soon as the family has eaten lunch. After two hours, the first pot of food can be moved to a hay basket to continue cooking. Another pot of food can be solar cooked from 1400 until 1600 and kept hot in a second hay basket. Both pots of hot, solar cooked food can be served to the family in the evening.

### Partly sunny days

**Breakfast**—Eat cooked food from the day before and heat water for tea using a fuel-efficient stove. Keep the remaining hot water in a hay basket for use later in the morning.

**Lunch**—Start cooking food with a CookKit if there is sun. If it gets cloudy, finish cooking the pot of food on a fuel-efficient stove, and then transfer it to a hay basket. Repeat this process if more than one pot of food is being cooked for lunch.

**Evening meal**—Start cooking food in a CookKit right after lunch if the sun is shining. If there is no sun, boil food for thirty minutes over a fire and put it into a hay basket to simmer during the afternoon. Move each pot of cooked food into a hay basket to complete the cooking process and then serve the pots of hot food to your family in the evening.

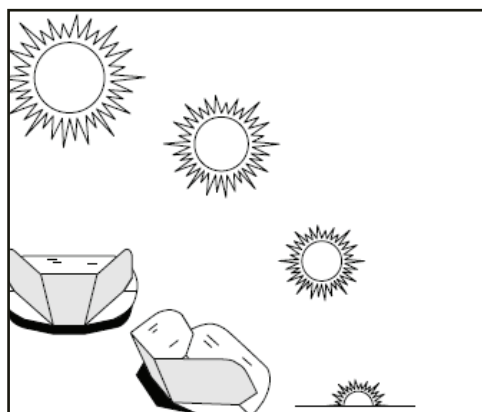


## Rainy/cloudy days

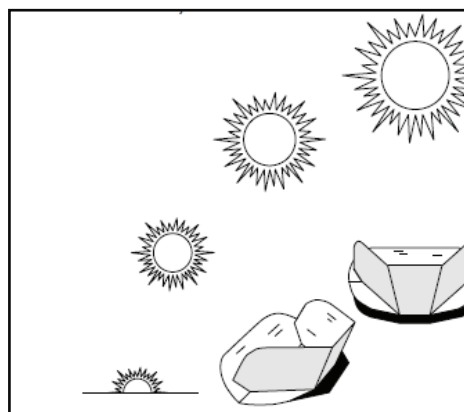
**Breakfast**—Eat cooked food from the day before and heat water for tea using a fuel-efficient stove. Keep remaining hot water in a hay basket for use later in the morning.

**Lunch**—Start cooking the lunch dish in the morning using a fuel-efficient stove. Reduce the amount of fuel used by placing the partially cooked food into a hay basket to finish cooking and keep it hot for lunch. Repeat this process if more than one pot of food will be served at lunch.

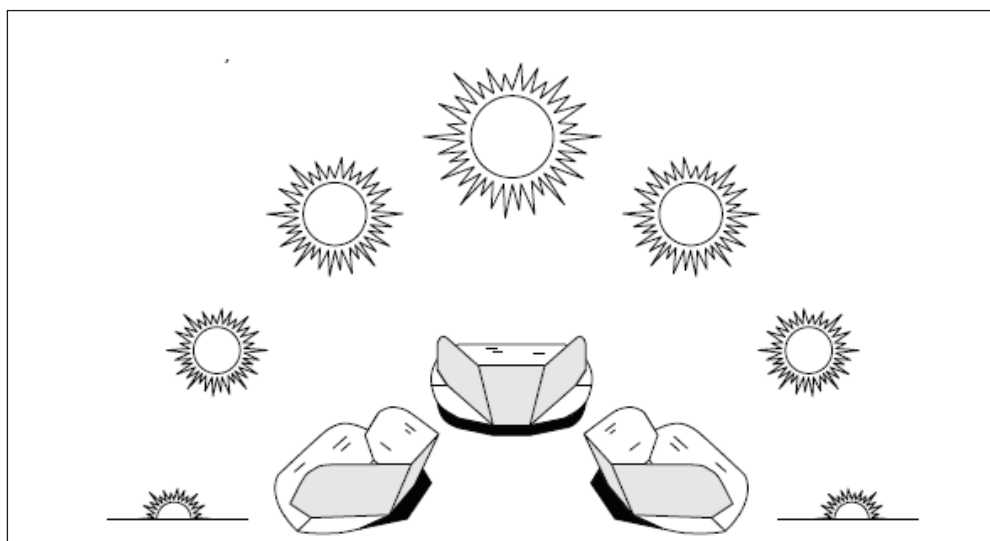
**Evening meal**—Prepare food in the afternoon with a fuel-efficient stove and reduce the use of fuel by placing partially cooked food in a hay basket to finish the cooking process and keep food hot for the evening meal. Repeat this process if more than one pot of food will be served.



*Orienting the solar cooker for the morning meal*



*Orienting the solar cooker for the evening meal*



*All-day cooking*



## APPENDIX C: THREE ROLE-PLAY SKITS ON THE IMPORTANCE OF SOLAR COOKING

### Skit #1

A woman sits in the shade weaving a basket. Her friend arrives. After offering the traditional greeting her visitor looks puzzled and says: “Why aren’t you cooking lunch for your family? Your husband will come home soon and he will be angry.”

The woman smiles and replies: “I’m cooking peas and sauce for our lunch. I’m also earning some extra money by weaving baskets while my food cooks. Would you like some tea?”

Her visitor stares at the cold three stone fire pit with its unburned wood and shakes her head. “How can you be cooking lunch? There is no fire. I do not smell smoke. And it will take too long for you to make us hot water for tea! I have to go home and start the fire for my family’s lunch.”

The woman points at two CookKits (with black pots in plastic bags) and a big woven hay basket and says, “My peas are cooking in here (she points at the hay basket), my sauce is cooking in there (she points at one of the CookKits) and our hot water is here (she points at the other CookKit).”

Her visitor, looking amazed and suspicious, says, “What crazy story are you telling me?”

The woman smiles and says, “It’s true. I have been cooking food all morning—with the sun. And that big basket is keeping my cooked peas hot until I serve them at lunch.”

Her visitor throws up her hands and asks, “Is this some kind of magic?”



The woman laughs and points at the sky, “No, it’s not magic, it’s just the sun. Do you see our big pile of wood in the corner?”

Her visitor nods and says, “Yes, I notice that you have much more wood than the rest of us.”

The woman says, “I have more wood than you do, because I don’t need to use it for cooking when the sun is shining, which in this desert is almost every day. With a solar cooker I can have solar heated water for my tea or for my husband’s tea all day without making a fire.”

The woman gets up, walks over to one of the CookKits, wraps a rag around her fingers, opens the plastic bag and removes a steaming pot of water.

Her puzzled visitor reaches out to touch the pot and burns her hand. “Ouch! That’s hot!” she shouts, shaking her fingers.

“It’s boiling,” says the woman. “Would you like some tea?”

Her visitor nods. The woman pours them both a cup of tea. They sit down in the shade to drink their tea and the visitor says, “Now tell me how this sun cooking works and tell me where I can get a few of those shiny cookers and a hay basket for my family.”

## Skit #2

A little girl walks with her schoolbooks down the road and passes another little girl carrying a pile of wood on her head. There is a CookKit with a pot on the roof of the house where the girl with the books lives.

**Girl #1:** “I wish I could go to school and learn to read like you.”

**Girl #2:** “You should tell your mother and father to let you attend school. I am learning so many wonderful things from our teacher. Someday I want to be a teacher.”

**Girl #1:** “I can’t go to school because I have to go out of camp to find wood for my mother’s cooking fire. Why don’t you have to do that?”

**Girl #2:** “My mother cooks all of our food during the day with a solar cooker, so we don’t need so much wood any more. My mother and father have decided to let me go to school instead of searching for wood.”

**Girl #1:** “What is a solar cooker?”

**Girl #2:** Points to the CookKit on the roof of her house and says, “There it is. It’s made of cardboard and shiny paper and it can cook ugali or peas with the light of the sun. Our other solar cooker is heating water so my father and his friends can have tea.”

**Girl #1:** “If I can get those for my family, maybe I can go to school too.”

**Girl #2:** “I’ll have my mother tell your mother where she can get her own solar cooker or maybe we can make one together.”

**Girl #1:** That would be wonderful. I can give it to my mother as a gift and maybe she will let me go to school with you.”



### Skit #3

Two women are standing next to a CookKit and a hay basket and talking. A pot of water is steaming in the CookKit.

**Woman #1:** “My baby is sick again. I think it is coming from the bad water in the river.”

**Woman #2:** “Why don’t you boil the water like I do before I give it to my baby?”

**Woman #1:** “I don’t have enough extra wood to boil water for my baby. I need all of that wood to cook the beans and ugali for my family. Also my husband wants hot water for his tea.”

**Woman #2:** “Why don’t you get a solar cooker to boil water for your baby? I boil two liters of water for my baby to drink every day. He never gets sick from my water. When the sun is shining, which is most days in this desert, I don’t need to use any wood to boil the water.”

**Woman #1:** “Why don’t you need to use wood?”

**Woman #2:** “Because my solar cooker gets hot from the light of the sun. It’s wonderful. I can leave it alone to heat the water because there is no smoke and no fire danger.”

**Woman #1:** “Where can I get one of these solar cookers to boil water for my baby?”

**Woman #2:** “I will take you to the factory (center) where you can get one. You should get extra ones for cooking ugali and beans any time the sun is shining. I will also show you how to make a hay basket.”

**Woman #1:** “What is a hay basket?”

**Woman #2:** “It’s the same kind of basket we use to store our blankets in during the day, but I can show you how to keep a pot of food or water hot in this basket for many hours.”

**Woman #1:** “Can you take me to the factory (center) now? I really want to get some solar cookers and I want you to show me how to make a hay basket.”





## APPENDIX D: SAMPLE DAILY FOLLOW-UP SHEET

	Name or number of household	Nb of SC installed	Observations for repairs			Other type of repair needed	Orientation		Cleanness		Type of dish
			SC	Bag	Black Paint		Correct	Incorrect	Clean	Dirty	
							: tape				
1											
2											
3											
4											
5											
6											
7											
8											
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10											
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14											
15											
Total											





Rabbi Harold M. Schulweis, *Co-Founder, Jewish World Watch*  
Janice Kamenir-Reznik, *President and Co-Founder, Jewish World Watch*  
Fred Kramer, *Executive Director, Jewish World Watch*  
Rachel Andres, *Director, Solar Cooker Project of Jewish World Watch*

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