

- The Reflector is built for equinox. By inclining and elastically deforming the reflector frame all other parabolas can be achieved with sufficient accuracy.
- The reflector frame is mounted on 2 pivots, one on each side of the frame and one in the centre, these do not form a line.
- Center is below, by inclining the reflector leads to change in its depth. Centre of reflector is lifted up (big radius) pressed down (short Radius). This done by 2 telescopic rods on at each end of the reflector. And needs



to be adjusted at 3 to 4 day intervals.

- Rotation of the reflector is done by a clockwork mechanism geared and to rotate the system as the sun crosses the sky (15° per hour)



Outside the Solar Kitchen at Barli Development Institute for Rural Women

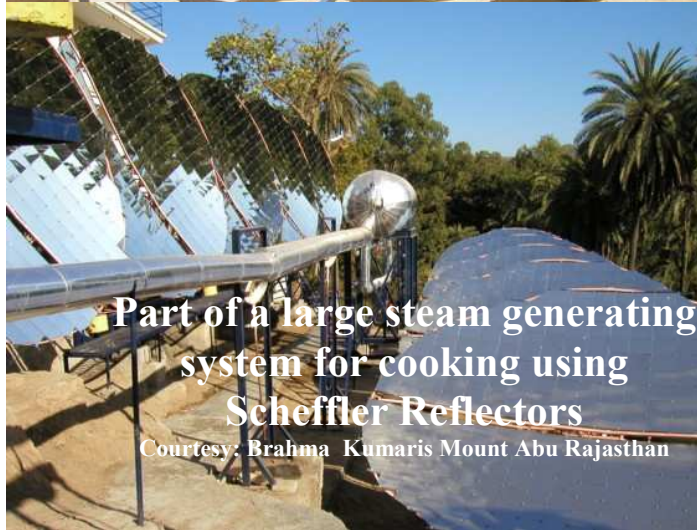


Making Chapattis Inside the Solar Kitchen at Barli Development Institute for Rural Women

At Barli Development Institute for Rural Women we have the capability to manufacture 2 sizes of Scheffler Solar Cookers. The 10 Meter Community Cooker and 2.7 Meter domestic size solar cooker. For both these sizes the same conditions apply. The 10 M² has a capacity of 2 to 4 kilowatts. The 2.7 M² about 800 watts.



The 2.7 Square metre Scheffler Solar cooker



Part of a large steam generating system for cooking using Scheffler Reflectors

Courtesy: Brahma Kumaris Mount Abu Rajasthan

Barli Development Institute for Rural Women
180 Bhamori, New Dewas Road, Indore
452010 Madhya Pradesh India

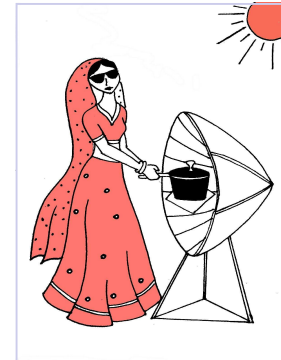
Phone: 0731 2554066

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Barli Development Institute for Rural Women

Information on SK 14 Domestic Solar Cookers and Scheffler Community and Domestic Solar Cookers



The SK 14 solar cooker was in-

vented by Dr. Deiter Siefert a Nuclear physicist from Neuötting, Bavaria in Germany



First solar kitchen at Barli Development Institute for Rural Women

The Scheffler Solar Cooker was invented by Wolfgang Scheffler who was born in Austria. He now runs a NGO Solare Brücke in village Aislingin in Southern Germany with his partner Heike Hoeldt they teach NGOs and others to build Scheffler solar cookers and promotion of other solar devices.

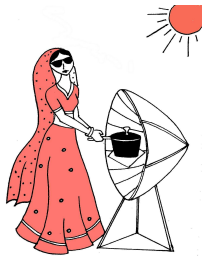
The SK 14 Parabolic Solar Cooker



- Why this solar cooker is called SK 14: SK is for Solare Kookar: 14 simply means it is 1.4 metre in diameter
- The SK14 is durable, although light, cost effective to build and easy to use. Its production capacity is approx. 600 Watts. During a good, sunny day, 3 Litres of Water will boil in 30 minutes.

capacity is approx. 600 Watts. During a good, sunny day, 3 Litres of Water will boil in 30 minutes.

- If you serving something like kitcheri you can cook for up to 20 people with the SK14, when a 12-Liter pot is used.
- The cooker can function from 1 hour after sunrise until 1 hour before sunset. Because of its high productivity, it works even with shorter sun rays. The total aperture is 1.53 M² and weighs 18 kilos.
- The focal point of heat for the SK14 is only 28cm wide. This means that if the maximum amount of energy is desired, the dish must only be moved every 15-25 minutes to face the new position of the sun.
- The heated area is located within the dish, therefore burning and blinding are easy to avoid. When the food is to be stirred, the reflector dish is simply rotated over the pot, so that the pot is in the shade.
- It should be place on a level surface with out any obstacles in the immediate cooking area.



- In windy conditions it needs to be secured by tying some little bags of sand to the frame to stop it blowing over and being damaged. Or by putting some steel pins pushed into the ground



- The SK 14 is now normally sold in a kit form now called K14 the benefit of this kit is that it can be assembled where it will be used. No damage or mis-shape of the parabolic can take place during transport.
- The K14 is a very versatile solar cooker. In the rural areas it can be taken to the field where the farmer can cook his food while attending to his chores, then have piping hot food for lunch.
- It can be used for many other work where heating is necessary. Like ironing clothes, food processing such as making jam pickles snacks for packing etc.

Below is results of a test done by bringing water to boiling point. Using a K14

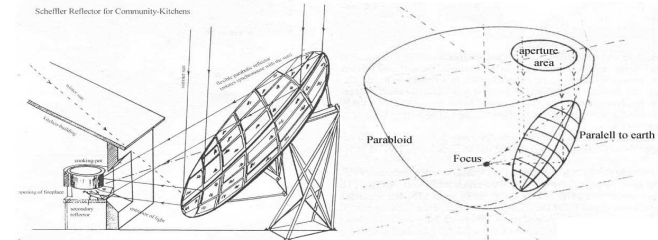
12 liter pot filled with 10 liters of water	
Time	°C
11:16	17.3
11:59	43.3
12:30	74.7
12:51	89.3
13:00	94.7
13:04	96.0
13:16	16.2
14:06	66.9
14:24	81.7
14:37	91.7
14:44	97.0
14:49	98.0
14:52	17.3
15:24	38.8
15:34	49.7
15:47	60.1
16:43	82.0
16:48	94.0
16:51	95.1
16:54	96.8
16:55	97.1
Total quantity of water boiled 30 liters.	



Scheffler 10M² Community Solar Cooker and Scheffler 2.7M² Domestic Solar Cooker

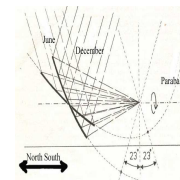
The Technology

- To make solar cooking the cooking place should not move, even better if it is inside in the kitchen, and the reflector outside. The solution is a flexible parabolic reflector which rotates on an axis parallel to the earth axis, synchronous with the sun.



How Does it work;

- The reflector is a small lateral section of a much larger parabolic. The inclined cut produces the typical elliptical shape of the Scheffler Reflector. Sunlight falling on this section is reflected to the focus some distance away.
- The Axis of rotation is exactly in north-south direction, parallel to the earth axis and runs through the centre of gravity of the reflector.
- During the day the concentrated light will only rotate around its own centre, not move sideways in any direction.
- In the course of the seasons the incident angle of the solar radiation changes +/- 23° in relation to the earth axis.
- The parabolic has to perform the same change of inclination in order to stay directed at the sun. Otherwise it would not be possible to maintain a sharp focus. But the centre of the reflector and the position of the focus are not allowed to move.
- This is only possible by shaping the reflector after another parabola for each seasonal inclination /angle of the sun. i.e. for each day of the year. The reflector has to change its shape.



Continued