

# What's cooking on the solar cooker front?

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## Introduction

The sixth International Solar Cooker Conference was held in Granada, Spain, 11 – 16 July 2006 and attended by 200 delegates from 38 countries. The conference not only brought together project implementers, cook stove designers, producers and government representatives but also individuals interested in solar cooking from a number of business organisations (Figure 1). This was the first time that private businesses showed such a high level of interest in solar cooking since the first international solar conference in 1992. What was also notable were the aesthetic improvements to cookers since the last international solar cooker conference in 2000 in South Africa. This article will reflect on the state of the debate around solar cooking as well as the changes that can be observed in solar cookers available in the world today.



Figure 1 A solar cooker cook-out at the Science Park (photo: Marlett Balmer)

## The state of the debate in solar cooking circles

### Interesting issues

There seems to be general consensus on the need for solar cooking, especially in areas where biomass energy (taken here to include dung, fuel wood and charcoal) is scarce and/or expensive. However, for the first time in the solar cooking debate, there was an emphasis on the need to “mainstream” solar cookers, and to stop seeing solar cooking as an excellent solution for

“someone else” or “someone in Africa”.

### Subsidies

Energy subsidies were discussed in a number of presentations, not only subsidies received by other fuels in a country, but also subsidies and incentives offered in developed countries for the utilisation of renewable energy. Subsidies for solar cookers became anathema in the structural adjustment period of the late 80's and early 90's but the re-emergence of the topic in the debate was interesting. It was noted for example that a number of countries offer substantial subsidies on fuels such as LPG, IP (kerosene) and electricity. These subsidies benefit those who already have access to some form of commercial fuel as well as those who are in a position to afford commercial fuels. Subsidies are therefore benefiting not the poor and marginalised but those better off. It was questioned why these (non-renewable) fuel subsidies were acceptable and subsidies for solar cookers considered so unacceptable. It was recommended that Governments look at existing subsidies and include solar cookers.

An interesting solution was offered by Grupp (2006) in the form of installed ‘use meters’ in solar cookers. The use meter would record actual solar cooker use and calculate the amount of fuel and green house gas saved, and credit the user with the monetary value of the GHG savings. Grupp proposed linking the use meter to the electricity grid and that the credits be given to the user in the form of free electricity (for those who are already connected to the electricity grid.) However, the scheme is also perfectly suited to reward the user in monetary terms, which can be used to pay off the solar cooker purchased on credit, enabling poor households to purchase a cooker and pay it off out of savings, using CDM (Clean Development Mechanism) funding to provide the upfront capital.

### Co-ordination, information sharing and exchange

The lack of co-ordination and information availability was recognised. It was noted that little comparative information was available on solar cooker products and technologies, little performance data and virtually no monitoring and impact data either. It was recommended that a database of technical specifications of existing solar cookers was established that ranked each cooker according to specific requirements to enable promoters to choose the most suitable cooker for their project.

Improved networking and sharing of experiences are generally viewed as essential for successful projects. Although networking can be very valuable, there is scepticism about the willingness and ability of people to effectively network. Also, there seems to be the notion that re-inventing organisations and co-ordinating structures would ensure that they function effectively; there is no recognition that it is not the structures that fail but the individuals and organisations in the structures that fail to participate fully and network effectively.

Nevertheless, the Africa discussion group decided to form an umbrella co-ordinating body called “Solar Cookers for Africa”. This group initially aims at becoming a web-based resource to support, link and catalogue all solar cooker projects in Africa. The advantages in identifying all the solar cooker projects in Africa and placing them in an easily understandable and accessible format are:

- Technology and knowledge sharing will be easier for solar cooker project planners and leaders inside and outside of Africa
- Work is not duplicated or repeated
- Project leaders will be able to assist each other to overcome challenges faced in each country or region
- It would be easier for the rest of the world to assist solar cooker projects reducing the amount of

time and cost of getting support - communication in Africa is often difficult, expensive and even impossible at times.

### The approach to solar cooking popularisation

Solar cookers have sometimes been called a solution looking for a problem. However, solar stoves can: supply free energy, save fuelwood, save trees, save the environment and free women from wood collection. Furthermore, they offer a simple solution to their intended beneficiaries, mainly poor, rural women without adequate energy sources for cooking. The underlying vision of solar stove projects in the 1950's-1960's were simple: many families in Third World countries had limited fuel for cooking and solar stoves could be made to cook without fuel (GTZ & DME, 2002a). During this period solar stoves were crude devices, neither extremely efficient nor produced in great numbers. Also, promoters argued that the stoves should be as cheap as possible, subsidised or better yet, given away for free. A number of projects also focused on teaching people to construct their own solar cookers using inexpensive materials.

During the 1990s a number of solar cooker proponents argued that solar cookers should not be subsidised or given away for free, but sold on a commercial basis, for profit, as any other cooking appliance. This implied that solar cookers should not be viewed as an appropriate technology product, aimed at the poor, but as a consumer product, for sale in an open market where anyone (rich or poor) could buy the product if it appealed to them. A number of further implications flowed from this approach:

- Solar cookers should be sold on a commercial basis, implying that the product should adhere to accepted commercial norms in terms of appearance, quality, product support, packaging, marketing, durability and functionality;
- A commercial approach implies that users pay the full price (cost plus profit) for solar cookers and that no subsidies are available in the product chain;
- If customers are expected to pay the full price for the product, the

quality of the product becomes important and promoters cannot expect users to pay a high price for a solar cooker that looks cheap.

The commercial approach to solar cookers was not entirely popular and is still not accepted by all proponents of the technology. They argue that their target groups are too poor to afford a solar cooker and rely on subsidisation. They further argue that the poorest require a basic solar cooker that must work and be as cheap as possible. When the performance of a solar cooker is increased, so does the cost, so in order to keep the cost down, only a basic cooker is required. However, experience from other projects has shown that the most important factor is to offer a variety of quality products and let the user choose what suits his needs and is affordable.

Supporters of the commercial approach argue that the more affluent target groups, such as farmers and environmental enthusiasts, require a sophisticated product, able to compete in performance and appearance with gas and electric cooking devices. If adequate demand can be generated for high quality solar cookers, prices will eventually decrease and the poor will benefit from low-cost, high-quality solar cookers. Proponents of the commercial approach further emphasise that everyone who cooks should own a solar cooker, whether they are living in the northern or southern hemisphere. It is argued that energy efficiency is everybody's business and solar cookers can reduce energy consumption in cooking, regardless of your financial status, and even if used once a week can contribute to reducing fossil fuel demand with concomitant environmental benefits.

From the conference, the divide between the commercial approach and the humanitarian approach seems to be growing. Although both sides agree on the need for quality cookers, the humanitarian approach sees the answer in decentralised, small-scale, local manufacturing while the commercial approach sees the answer in mass production. The attendance of the conference by two industrial designers sponsored by a business organisation was an interesting signal; that a strong, business organisation recognises the potential of the product but it requires fine-tuning

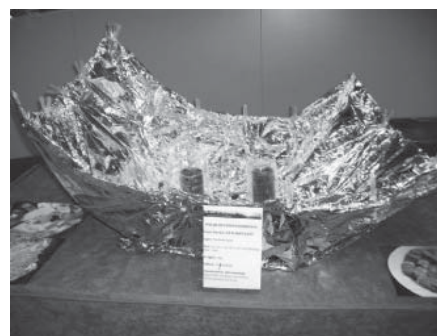


Figure 2 Homemade solar cooker with foil and clothes pegs (photo: Marlett Balmer)

in terms of appearance and manufacturing processes.

In summary, the approach to solar cooker manufacturing and dissemination evident at the conference seems to divide proponents into 3 groups:

- The advocates of the homemade "make your own cooker" approach; utilising available material, sometimes free of charge, to make your own cooker (Figure 2).
- The advocates of disseminating (not necessarily selling) solar cookers to extremely poor households and those in extreme disaster situations; the poorest of the poor cannot afford to pay for the technology and must therefore be subsidised. The focus is therefore on extremely cheap cookers with the highest possible efficiency.
- The proponents of a highly commercial approach; requiring very high quality products, well made, attractively packaged and sold in a wide range of shops, supported by sophisticated marketing campaigns.

There is clearly a place for all three approaches, and the challenge is how to structure the debate at a conference to ensure maximum benefits for all three groups.



Figure 3 The Mexican HotPot (photo: Marlett Balmer)

## The products

The products have also changed and developed in a number of ways. Less prototypes were exhibited and more cookers of which a significant number have been sold, were displayed at the conference. For example, the “Hotpot” from Mexico, seems very promising, a high quality product with reported sales of more than 2500 in a little over



Figure 4 Ulog's camping cooker (photo: Marlett Balmer)



Figure 5 The Japanese take on the SK. Note the high quality finishes, legs and pot holder (photo: Marlett Balmer)

2 years (Figure 3). The product is also relatively affordable at around \$45. It is supplied with a well written recipe book and cooking instructions.

There were also a number of exciting improvements to existing cookers.

At present it seems to be the middle (Figure 4 & 5) of the range products (Sunoven, Sunstove, SK series) that are enjoying the most commercial success (Figure 6).

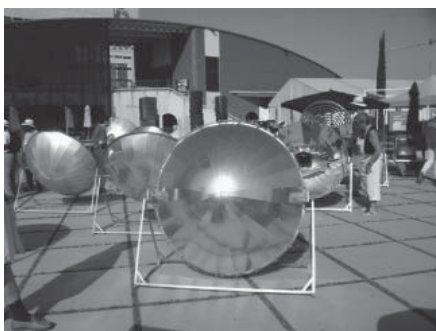


Figure 6 SK's/Koch cookers/Izola (photo: Marlett Balmer)

## The Way Forward

The Conference saw the creation of the “Solar Cookers International Association” affiliated with Solar Cookers International. The purpose of the Association is to improve health, economics, societies and environments through collective actions to spread solar cooking, pasteurisation and food processing. The Association will consist of founding members (organisations and individuals who support the purpose and pay annual dues), a steering committee consisting of volunteers to facilitate collective action, co-ordinate communication and allocate and monitor use of funds for collective actions.

Regional networks and regional network leaders were selected in the following regions: Asia/Australia, Ibero-Latin America, Africa and Europe and non-Latin Americas.

Furthermore, collective action groups in the following areas were also formed: education, health, business, humanitarian, advocacy, technology and food processing.

## Conclusions and Recommendations

The International Conference on Solar Cooking and Food Processing of 2006 successfully showcased exciting developments, not only in solar cooker design but also in the debate of popularising solar cooking across the globe. The conference recognised that solar cookers have not been made visible and accessible to the millions of people who need them. Urgent problems, both human and environmental continue to accelerate and solar cookers can be among the solutions to alleviate problems, such as indoor air pollution related illnesses, fuel scarcities, smoke and water related illnesses and fuel collection burdens of women. The message was clear: start at home and use a solar cooker as often as possible everyday to aid the spread of this valuable technology. Some specific recommendations are summarised below:

- Integrate solar cookers into other solutions to address fuel and environmental problems;
- Investigate the income generation possibilities of solar cookers;
- Training and demonstration of solar cookers are essential for

success;

- Re-deploy existing fuel subsidies to include solar cookers;
- Upscale solar cooker targets;
- Utilise effective marketing strategies;
- Ensure that projects include some form of monitoring and verification to enable impact measurement and results of solar cooker programmes;
- Form regional and local chapters;
- Look at minimum quality standards.

The recognition of the high social and environmental costs attributed to the use of certain energy sources is becoming increasingly recognised, for example the South African Government has initiated the development of a strategy to optimize the use of household fuels. These and other positive policy-related developments, coupled with progressive developments in the solar cooker field may push solar cookers from the fringe into the mainstream of clean household cooking technologies.

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## Profile of the author

Marlett Balmer holds a Masters degree in Development Studies, a B.Comm Honors (Energy Studies) and a B.A Honors degree from the University of Johannesburg and is currently registered as a PhD student in the Institute for Technological Innovation, University of Pretoria. Marlett has been working in the energy field for more 15 years and has completed more than 60 energy and development related research projects. She received the Eskom eta award as Woman in Energy 2003 for her contribution towards the energy sector in South Africa. For more information please see [www.pdc1.co.za](http://www.pdc1.co.za).