

Solar cookers in Afghanistan

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Household energy – a rare commodity

Energy for cooking, lighting and heating have become increasingly more expensive. Energy sources that are free of charge (wood, bushes) are no longer available. Thus, in many regions of Afghanistan dung has become the main and often the only source of energy. However dung is also needed and used as the local fertiliser – there is only one single fertiliser factory in all of Afghanistan. Fertiliser has to be imported from neighbouring countries and needs to be transported to remote areas where the difficulty of access increases costs. Therefore there is a conflict of use between dung as a source of energy and as a fertiliser for crops.

Various development organisations have tried to address this situation by distributing solar cookers as Afghanistan has around 300 days of sunshine per year. The UNHCR has distributed solar cookers (parabolic type) for free in various refugee camps, but did not give adequate training on how to use and maintain this new technology. An evaluation of these solar cookers has never been undertaken.

The German Technical Cooperation (GTZ) has also tried to improve the energy situation by distributing the same type of parabolic solar cookers. In a suburb of Kabul the NGO Global Hope Network distributed 20 solar cookers to selected families. Post project evaluations revealed that the cookers



Figure 1 Brother Schorsch and apprentices (photo: Barbara Clasen)

had been wrongly assembled with the blind foil strips inside and the reflecting strips outside. This explains why – in spite of reports to the contrary! – the cookers are mainly used as stands for drying clothes.

Such errors endanger the image of any new technology. Furthermore, tests at the Department of Renewable Energy which is part of the Ministry of Energy and Water, have shown that this type of cooker is not wind resistant, gets easily scratched and is not suitable for regions like Afghanistan with its regular sand and dust storms.

Thus it is not surprising that the parabolic solar cookers can no longer be found in Afghanistan.

Chinese solar cookers in Tibet – suitable for Afghanistan as well?

In Tibet the energy situation has been a major challenge. Yak dung is used almost exclusively for cooking and heating purposes. The introduction of simple metal semi-parabolic solar cookers – the ‘butterfly cooker’ – was seen as a way of improving this situation. Today, nearly every family in Tibet has such a cooker that is used for boiling water and for cooking food in pressure cookers. The butterfly cooker has the following advantages:

- Easy to handle, easy to adjust to position of the sun
- At around 30 kgs easy to transport
- At a price of around 50 USD affordable at least for families with a regular income
- Very durable as the cheap reflecting foil can easily be replaced

The drinking and eating habits of Tibetans are almost identical to those of Afghans. Tea is served at any time. It is kept hot in a large thermos – a favourite wedding present. Vegetables and meat are usually cooked together, in a pressure cooker. In both countries people like to eat hot soup based on meat and

oil which give energy in the extremely cold winters.

In view of the similar climatic conditions, eating habits and difficult energy situation a successful introduction and dissemination of the Tibetan solar cooker seemed promising in Afghanistan.

Tests regarding the social acceptance of the solar cooker were performed in different rural areas, facilitated by an advisor from the Department of Renewable Energy of the Ministry of Energy and Water. The cookers for the test phase had been imported from China by the GTZ Renewable Energy Project in Afghanistan. The tests revealed that:

- The cooker is socially acceptable and as in Tibet is used mostly for water heating and pressure cooking
- An average family of about 12 family members can save at least 500 AFS (10 USD) per month with regular sunshine
- In all pilot areas people asked to buy solar cookers
- The cooker introduction needs to be accompanied by an intensive training in how to use and how to maintain the cookers
- Women from better off families are harder to convince to use the new cookers – their better financial status leads them to favour the more modern cooking with gas
- The position of the cooker needs to be well chosen (no shade, easy to get to, not visible for non family members)
- The purchasing power is generally there. However, a system of payment in installments should be developed that takes into consideration local financial conditions.

The results of this test phase were very promising. However, all people included were of the opinion that the solar cookers should not be supplied by imports from China. It was agreed to set up a local production facility that



Figure 2 Cooker assembly with Dr. Faruk (photo: Barbara Clasen)

would create jobs and could serve as reference point for repair and maintenance services.

Creation of jobs through production of solar cookers

Two interested persons have been identified, each motivated in different ways. Brother Schorsch, member of the Christian brotherhood community and head of the German Medical Service – GMS in Afghanistan (Figure 1). For 25 years he has been running a workshop in Afghanistan which primarily provides technical services to hospitals. Since 2002 – with the support of MISEREOR - GMS has been engaged in vocational education. Young men from poor families get technical training in mechanics as well as in business management and customer care. At the end of the training they receive basic workshop equipment to enable them to set up their own workshop in their home province and thus build up a private enterprise for sustainable income.

Brother Schorsch is well aware of the precarious energy situation. He has tested the Tibetan cooker and found it to be an ideal product to create sustainable businesses for his apprentices. Together with them he produced a copy of the Tibetan cooker that even included some technical improvements to make the adjustment of the cooker more user friendly, by simplifying the slope an-



Figure 3 Solco and Bamyán assembling cooker (photo: Barbara Clasen)

gle for easier adjustment. He also used heavier screws which give more stability to the cooker and do not wear out as easily.

Dr. Faruk is an Afghan business man who lived abroad for many years (Figures 2 & 3). He returned 2 years ago to contribute to the reconstruction of his country. He immediately recognized the market potential of the cooker and once he realized there were no prospects for subsidies he started to produce a prototype. After a few alterations his model now complies with the quality standards. Dr. Faruk sees great potential in the local solar cooker market and plans to start a large scale production in Kabul with delivery services to all provinces.

Immediate business development

Neither producer was promised any subsidy. This was to ensure sustainability right from the beginning. The Ministry of Energy and Water/Department of Renewable Energy only promised the following supporting measures:

- Support in getting the contact details for purchasing the reflecting foil
- Support in getting media coverage for the new technology
- Information and guidance regarding the new cookers to be pro-

vided in the provinces through the Department's branches, including regular monitoring

Due to long established contacts between the CIM Advisor and the German ISAF the start up of the solar cooker business has been boosted. The public relations unit of the German ISAF within NATO has placed an order of 500 cookers for distribution to different regions in order to build good relations with local populations and to enhance their image. Brother Schorsch got a contract for 300 cookers at 80 EUR each for delivery through to the end of March 2007. Dr. Faruk's contract is for 200 cookers at 70 USD each. Brother Schorsch receives more money because of the educational component of his project and the need for workshop equipment for his apprentices. The sales price will be determined by the producers.

In order to guarantee a sustainable dissemination of the new cooker technology the CIM advisor will participate in the first distributions to teach women how to use and maintain the cookers. In due course this guidance will be provided by a female employee of the Department until such time as the businesses are fully established.

Profile of the author

Barbara Clasen has been working in Afghanistan for 5 years now in the field of promotion of income generating activities especially for women, capacity building and for the last 2 years as advisor to the Ministry of Energy and Water. She is particularly happy that the solar cookers from China will now also be introduced into school curricula as an example for the use of solar energy, and is currently developing a respective curricula component. Her previous work was primarily in western African countries.

Public Private Partnership - Synergies for all? Jointly fighting Poverty

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Improving living conditions of smallholder tea growers

"I used to manage to pluck about 400 kilos tea leaves, but now that I am man-

aging my field better I can pluck 600 kilos", D. Logeya contently says. The smallholder tea grower benefits from a multifaceted project Lujeri Tea Estates in Mulanje has been operating since

2005. Together with the German Technical Cooperation (GTZ), Lujeri aims to improve the economic and food security of smallholder farmers in 45 villages around the Estate.

The Public-Private Partnership (PPP) project is financed by Lujeri Tea Estates and GTZ on behalf of the German Ministry for Economic Cooperation and Development (BMZ).

Reducing poverty

Investment in the development of the villages near to Lujeri Tea Estate is not only for the benefit of the people themselves, but is also in the interest of the Estate. Through assuming responsibility and strengthening of their social and economic partnership Lujeri Tea Estate hopes to reduce land and labour conflicts and to acquire more tea leaves of better quality from smallholder growers, who provide up to 15% of Lujeri's tea.

Mulanje district is densely populated and demands on land are very high. In the villages bordering the tea estate people rely on purchasing their staple food, as most of this district is not suitable for maize production. While during the main season employment is available, so there is money to buy food, in the dry season there can be a lack of money to buy food

To fight poverty and hunger in the area two main strategies have been developed by Lujeri and GTZ. Firstly, for smallholder tea growers to increase income from the land used for tea production. Secondly, to promote use of improved fuel and food security knowledge and practices so that demand for these can be met by locally available materials.

GTZ's long standing experience with implementing food and fuel security projects makes them a reliable partner. Since 1996, the Integrated Food Security Programme (IFSP) of GTZ was working with 185 communities in Mulanje using an integrated approach in order to stabilize food security. Main areas of intervention were in the fields of agriculture, fuel, income generation, health, as well as food preparation. Since 2004, IFSP (now Information centre for Food & Fuel Security Promotion) has concentrated on the fuel side. The diverse experiences gathered during the last decade have now been expanded to Lujeri Tea Estate.

Participatory approach

Overall, the improved cooperation between the Estate and the surround-

ing villages has led to a better mutual understanding. In this way the Group Village Headmen have had direct impact on the implementation of projects and can give feedback about how well the initiatives are working in their villages.

Income generation

In order to improve the tea production of the smallholders, the Tea Research Foundation Central Africa (TRFCA), held training courses, which proved to be so successful, that trained growers had an average tea leaf production per hectare, which was almost 25% higher than that of the non-trained growers.

As knowledge transfer is key for development, trainings were held not only in the field of tea agronomy but also in participatory concepts and extension tools. At this workshop Tea Clubs were seen as the ideal platform to pass on training. Now 101 Clubs have formed.

Growers are sharing ideas, making plans for progress, pooling resources and starting bank accounts.

The second challenge was how to make smallholders self-sufficient during the dry season when there are less employment opportunities

Here the solution was to diversify food production away from only growing maize, which does not grow well in the area anyway. Lujera Tea Estate therefore distributed cassava stems and sweet potato vines. The growing, processing and marketing of tubers for the food industry will provide extra income.

Food and fuel security

Another severe problem was how to resolve the firewood shortage. Families in the villages often have to spend 150 kwacha a week for firewood. Consequently, food that has to boil for a long time, e.g. beans, was not cooked so often meaning people lacked a balanced diet, which lead to health problems. Furthermore, illegal gathering of firewood in Lujeri Tea Estate's wood plantations and in the Mulanje mountain reserve was rising, causing not only environmental damages and economic losses, but also conflicts with the estate management and local authorities.

To reduce the firewood requirements, energy efficient cooking stoves, saving 50% firewood, were introduced into the

project area. So far, sixteen groups have been established and trained in clay stove production. With support from GTZ interested women were trained to build high quality stoves and to fire them properly in a self constructed kiln. The energy efficient stoves are not only for their own use but the producers can sell them in markets or to their neighbours. Demand is high according to Group Village Headman Mikundi. "Many ladies from my village and even from others that don't have clay sources are asking for stoves." Thus, stoves are not only saving firewood, and therefore money, but also generating some additional income in the villages.

To meet food requirements and to reduce the dependence on maize as staple food, the growing of cassava and sweet potatoes is promoted.

Also, maize-free recipes as an alternative have been introduced, using foods high in energy and nutrients that cater for different user needs. This is part of the promotion of diet diversification and utilization of locally available foods.

Village based voluntary food and fuel promoters were trained by GTZ extension workers to demonstrate these interventions. In this way food security knowledge and best practices remain in the villages.

Outlook

Still, there is work to do. Before the project ends in April 2007 Lujeri and GTZ want to promote nutrition messages for HIV/AIDS affected households. Doing so, Lujeri Tea Estates hopes to improve the health of its workers and their families. For the stove producer groups marketing tools will be established. Furthermore, tea agronomy trainings will be extended so that each Club has a trained member who can provide technical support.

Profile of the author

Lisa Feldmann has a degree in mass communication and journalism. After working half a year for the Centre of Food & Fuel Security Promotion (IFSP) in Malawi on a short term contract for Public Relations and Documentation, she now works for GTZ's household energy programme HERA. Her main tasks are Public Relations and knowledge management.