

In December 2008, TBBC Participated in the conference **Exploring alternative fuels and energy technologies in humanitarian settings**. At the conference, that brought together a wide range of agencies and individuals from the civil society, INGO's and decision makers from primary Africa and India, TBBC presented an overview of its supply of cooking fuels to the border camps since 1995 until today. The conference was organized by the Women's Refugee Commission, and addressed the issue of women's and girls' vulnerability to gender-based violence as they collect firewood in humanitarian settings.

Below are the key outcomes and observations of the discussions, followed by a report from the conference¹;

- There are no 'silver –bullets' when it comes to energy supplies in humanitarian settings. There is no one ideal energy sources for all contexts or indeed even within a single context. The ideal energy supply comes from a combinations of solutions, which an appropriate for a particular situation.
- Any solutions must be multi-sectoral, there is no way to address any part of the fuel response in isolation.
- Sustainability – beneficiaries must be involved in product and program design – again this will enhance the idea of ownership.
- Internal monitoring and evaluations and external evaluations will ensure long term funding for any initiatives. It was highlighted during the conference that there is a need for a set of international standards relating to household energy in humanitarian settings.
- The protection issues associated with firewood collection are much broader than sexual assault during firewood collection. They extend to livelihood, environmental and health issues – especially indoor air pollution.

¹ This report is written by TBBC staff that participated in the conference. The report does not cover all presentations that were held during the conference. For more information from the conference, please visit: <http://www.womensrefugeecommission.org/programs/rh/beyond>

Background to the conference

The 'Beyond Firewood' conference was organised by the *Women's Commission for refugee Women and Children* (subsequently renamed the *Women's Refugee Commission*). The *Women's Refugee Commission* is an NGO, primarily an advocacy agency, based in New York who works in conjunction with governments, UN agencies and International humanitarian aid organisations.

The *Women's Refugee Commission* works within three program areas – Reproductive health, protection and detention and asylum. The 'Beyond Firewood' project falls under the field of reproductive health. The great majority of cooking fuels used in humanitarian settings – especially refugee and IDP camps is firewood. The collection of firewood is undertaken largely by women and poses significant risks to their personal security. The *Women's Refugee Commission* is pushing for solutions that reduce displaced women's and girls' vulnerability to gender violence as they collect firewood. The development of alternative sources of cooking fuel can help lessen the potential for attack.

To address the concerns relating to energy needs in humanitarian settings, two mechanisms have been designed: 1). an Inter-Agency Standing Committee Task Force on Safe Access to Firewood and alternative Energy in Humanitarian Settings (IASC Task Force SAFE); and 2). The International Network on Household Energy in Humanitarian Settings.

Structure of the conference

The conference brought together a wide range of participants from a number of different fields relating to energy supplies in humanitarian settings. It brought together developers, implementers and users of fuels in humanitarian settings. Additionally, there were participants who were involved the development of energy technologies which had the potential to be applied within humanitarian settings.

There were over one hundred participants, including representatives from relevant UN agencies – UNHCR, WFP and UNEP, as well as governments, INGOs, donor agencies and academics. There were a mix of field workers and head office staff working primarily in Africa, where the issues are perhaps the most pertinent. There were also a number of representatives working within Asia, especially India.

The conference was structured around a series of panels, each focusing on an aspect of energy supply in humanitarian settings. Each panel consisted of a series of presentations, many of which included practical demonstrations of emerging energy technologies. There were three conference rooms, operating simultaneously and an additional demonstration room.

TBBC presentation

The panel in which I gave the TBBC presentation was entitled '*Case Studies of Fuel-related Interventions in Refugee/IDP Settings*'. There were three presenters on the panel; the other two presentations were focused on fuel security and supply dynamics in refugee and IDP camps in various parts of Africa.

The TBBC presentation provided an overview of TBBC's supply of cooking fuel to the border camps since the project's inception in 1995 until today. The presentation examined all aspects of cooking fuel supply;

- Initial reasons which necessitated TBBC's supply of cooking fuel.
- The various types of charcoal provided over the years.
- Monitoring/ quality control.
- Stove making, charcoal making.
- Storage and distribution.
- Costs of charcoal.
- Alternatives already explored; LPG, firewood, kerosene.

The presentation generated a great deal of interest, largely due to the fact that TBBC's regular supply of cooking fuel to refugee camps is somewhat unique. There are a number of projects which supply cooking stoves for the efficient use of firewood, however the great majority do not supply fuel. The only other regular supply of charcoal to refugee camps is to the Bhutanese camps on the Nepal/Bhutan border. There have been some short term supplies of cooking fuel in other contexts, however, no ongoing projects.

There was a presentation from a representative of the Lutheran World Federation, who is the agency, working in partnership with UNHCR, responsible for fuel supply to the Bhutanese refugee camps. The presentation focused on LWF's supply of charcoal briquettes to camps. The CCD briquette supplied by LWF are manufactured in India and used in small terracotta stoves. In my opinion the briquettes and stoves used in the Nepal camps are not as refined as the compressed charcoal briquette which TBBC is currently sending to camps.

The supply of cooking fuel has been identified as a critical gap in most humanitarian interventions. Whilst food aid is supplied in all humanitarian emergencies, the fuel which is essential in preparing the food is generally not supplied. What became clear throughout the presentations was that the collection of firewood is the most common fuel source in humanitarian settings. This has led to large scale environmental degradation in the areas in which refugee camps are located as well as posing a significant risk to the personal security to those involved in the collection of firewood – predominantly women.

Stove technology

The cooking stoves currently supplied by TBBC seem in many ways to be ideal, in that they are simple, inexpensive and readily available in Thailand. Perhaps one aspect of cooking stoves that could be explored in greater depth is their efficiency in the use of charcoal. There has been a great deal of research and development in the area of stoves which use bio-mass fuels, especially firewood. These developments have led to significant improvement in the efficient use of firewood. There were a

number of demonstrations of firewood stoves at the conference, however very few which used charcoal.

TBBC presented both the strengths and weaknesses which have become apparent during stove making activities in the camps;

- Raw materials are inexpensive – readily available.
- The technology is simple – easily transferable.
- TBBC supplies cooking stoves to all refugee families, it was envisaged that TBBC would purchase stoves in camp and support this income generation activity.
- The capacity is not sufficient to supply global needs, however TBBC continue to purchase stoves from a stove making project in two camps, which is sufficient to meet the needs of families of new arrivals.
- Those who attend trainings are able to manufacture a stove for their own needs. The trainings however involve a significant time commitment – up to 4 months full time.
- Not economically viable, as stoves are a low cost item.

Prakti Design, a company based in Pondicherry, India whose work is focused on stove technologies for humanitarian settings had a presentation where they described the construction of mud stoves in various African contexts. Simple technology, fast construction, using readily available materials. Perhaps some potential here for TBBC to explore such technology in camps?

Improved stove technology is potentially one way to improve the way cooking fuel is used within the camps supported by TBBC.

Indoor air pollution.

Indoor air pollution was an issue addressed in quite a number of the presentations – again, current research has focused largely on the effects of using firewood for cooking indoors. It is widely acknowledged through comprehensive studies that the use of firewood indoors is detrimental to people's health.

Given that TBBC supply charcoal, rather than firewood, this ostensibly, is not of any concern. However, it must be acknowledged that firewood collection and use, to supplement or replace charcoal is evident in all camps, therefore TBBC should take steps to reduce the potential detrimental effects on refugee's health, caused by using firewood or other biomass fuel collected around camps – leaves, bark etc.

A TBBC staff exchange to Nepal during 2007, made note of the use of chimneys by refugees in the camps along the Bhutan border. During a debrief at a TBBC meeting in Bangkok following this trip, it was agreed to look further into the possibility of TBBC introducing chimneys for use in the camps. Due to other issues in the field taking precedence over chimneys, no further action was taken.

During 'Beyond Firewood', as part of a presentation given again by *Prakti Design*, there was an audio visual presentation demonstrating chimney making in refugee camps in Africa. Incredibly simple and fast manufacture using basic tools and materials. Each chimney took less than half an hour to complete. This sort of manufacture could easily be transferred to camps along the Thai/Burma border.

Charcoal is considered to have low smoke emissions and therefore does not pose the same threat to people's health by way of smoke inhalation. Charcoal does however emit Carbon Monoxide (CO) which at high levels is a health hazard. This cannot be negated by the use of chimneys. Again, there was no research presented at "Beyond Firewood" with regards to indoor pollution caused by the CO emitted from charcoal, it is recommended that TBBC explore these issues further.

Alternative technologies

There were a wide range of 'alternative' energy technologies presented at the conference. Perhaps the most impressive of these were presented by Mr. Deepak Gadhia of the *International Centre for Networking, ecology, Education and Reintegration/ Gadhia Solar Energy Systems*.

The ICNEER is an NGO based in Gujarat, whose work is centred on promoting sustainable development, taking into account both ecological and economic considerations. *Gadhia Solar Energy Systems* is a company who are involved in solar energy research and development and manufacture. Gadhia has been involved in the development of both household level solar energy systems, as well as large scale solar energy systems for businesses and the Indian military.

Again, during TBBC's visit to the Bhutanese refugee camps in 2007, staff were able to view the *SK 14* parabolic cooker in use. The *SK 14* is a product of Gadhia Solar.

A core part of the ICNEER's work is the dissemination of renewable energy technology to villages throughout India. This program involves villagers purchasing equipment, such as a parabolic cooker, through a micro-finance scheme. One issue that came up in many of the presentations was that of recipients having 'ownership' of resources. If resources are purchased rather than simply given to people for free that are more highly valued and therefore used more effectively.

Villagers are instructed in how to construct and maintain the parabolic cooker. Furthermore trainings are conducted to suggest potential income generation opportunities which are available to owners of the cookers. This usually involves the sale of food prepared using parabolic cookers.

There is certainly a great deal of potential for TBBC to trial parabolic cookers in camp, as a supplementary energy source for cooking. Perhaps an appropriate starting point would be to install parabolic cookers for boiling water or cooking within communities, perhaps groups of 10 households or CBO's.

The parabolic cookers are easy to assemble and involve a relatively low-maintenance regime. The cookers can generate high levels of heat and are suitable for even grilling or frying in a wok.

The only restriction of the cookers is that they need to operate during daylight hours and with sufficient amounts of light – not necessarily clear skies, just sufficient light to operate. Heavy cloud cover reduces their efficiency. There are simple ways of adapting to these restrictions, such as the use of insulating baskets, which keep food warm for hours after it has been prepared. Retained –heat baskets can even continue to slowly cook food after some initial cooking in a solar cooker.

Deepak Gadhia suggests supplementing solar energy with bio-gas, which can be extracted from animal waste or even a small landfill site.

There are in fact a wide range of technologies beyond the *SK 14*, including solar thermal power generation systems and parabolic mirrors which can be constructed outside a home and provide solar energy to stoves inside – very impressive.

Further insights into solar technology were provided by Dr. Agnes Klingshern of GTZ. GTZ is international cooperation enterprise for sustainable development with worldwide operations; it is owned and administered by the German Government. Some key points raised during Dr.Kingshern's presentation related to her experiences in implementing solar energy technologies in humanitarian settings in Africa;

- There was often a concern amongst recipient that if they took up solar technology, they would no longer receive cooking fuel rations.
- Even taking into account the restrictions of using solar energy (i.e. daylight, climatic conditions etc.) it is still very efficient. If solar energy was to supplement an additional energy source at 35-40% of entire energy needs, it would result in significant increases in overall energy efficiency.
- Again –relating to ownership of resources; 80% Angolan Refugees in Namibia carried back solar cookers with them upon return to their places of origin. After purchasing the cookers through micro-finance schemes.

There were demonstrations of the 'Cook-it' solar cookers, which are basically a collapsible cardboard structure with a reflective surface on the inside of the cooker. I did not sense a great deal of enthusiasm from participants who had trialled these devices in the field. I also recall a similar device being trialled in Site I, with very disappointing results. Simple technology, but extremely slow in food preparation. Additionally, they require a plastic bag to be used and disposed of every time food is prepared.

As part of the adoption of any alternative technologies, TBBC should explore funding option which are available for projects which promote the use of renewable energies.

Relevant Websites;

- International Network of Household Energy in Humanitarian Settings ; <http://www.fuelnetwork.org/>
- Women's Refugee Commission; <http://www.womensrefugeecommission.org/>
- Prakti Design http://www.prakritidesignlab.com/crbst_0.html
- International Centre for Networking, ecology, Education and Reintegration/ Gadhia Solar Energy Systems. www.icneer.org
- Gadhia Solar Energy Systems Pty. Ltd. www.gadhia-solar.com
- GTZ; <http://www.gtz.de/en/index.htm>