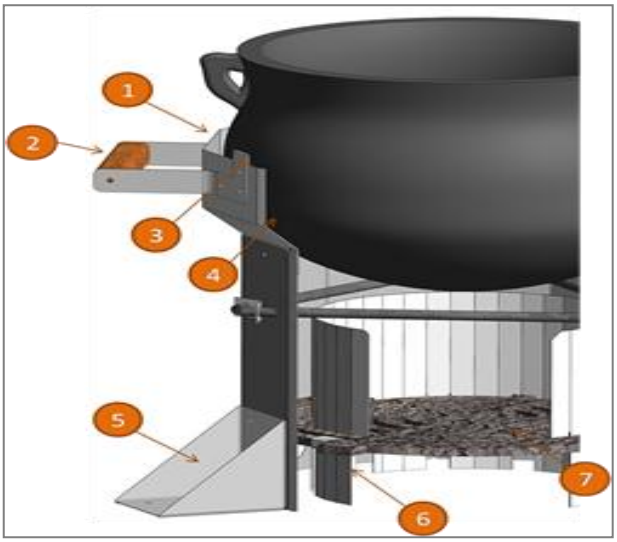
THE BERKELY COOKSTOVE
TO IMPROVE RURAL LIVELIHOOD

By Ivan Lawrence White



In 2005, Ashok Gadgil, Director of Environmental Energy Technologies Division designed with his team of scientists and engineers at the Lawrence Berkeley National Lab a stove tailored to respond to rural families' needs and at the same time to lessen the destructive impact cooking has on the environment.

Based on the Tara stove first developed in India, before its distribution the Berkeley stove underwent 14 modifications after several field tests. The result was the delivery of a stove that requires less than half the fuel of traditional cooking methods.

For the stove conception, engineers on the Berkeley stove relied on inputs from the Darfur's women to ensure the design of a durable fuel-efficient cook stove that could preserve cooking traditions and are more likely to be integrated into households. Their philosophy is that the user is *the only person who can say definitively whether a product is functional and will continue to meet their needs in the future*. To accomplish this, regular field evaluations, performance testing, and user feedback were carried out.

The Berkeley stove is four time more efficient than traditional three-stone fires and two times more efficient than clay stoves. The efficiency and design of the stove has many benefits including:

- fully enclosed flames reducing the danger of the dense straw and stick shelters from burning down.
- reduction of smoke production compared to other stoves, reducing smoke inhalation and lung disease.
- saving time by cutting down fuel wood treks.

The main components of the stoves are designed to use only straight sheet metal cuts and folds. Such a design provides flexibility in parts manufacturing.

Stove assembly is designed for scalability by eliminating the need for advanced tools. A single individual operating hand tools without electricity can assemble these stoves. However assembly shops can be developed as in Darfur where the stove assembly shop currently employs a dozen workers using mostly hand-powered tools and has an output capacity of 26,000 units per year.

Stove cost are low and average a $20 to provide a stove to a user, including the cost of transport, distribution, and training to use the stove (the unit cost varies somewhat with prices of steel, shipping, etc.).

To this day, the project distributed more than 37,000 stoves in rural areas of Darfur. As of December 2012 the stove helped more than 120,000 women and their dependents, with a worth of more than $32 million to their recipients.

This technology and the way how to create production units in interested countries are implemented in Haiti, Ethiopia, and Mongolia.

To know more

Berkeley Lab website

Potential Energy

Article in Potential Energy

Darfur Cookstoves website

GadgilLab website

Article in Resilience