Fuel-saving stoves in Lesotho
for better nutrition and livelihoods

PROJECT TITLE

"Protecting and improving food and nutrition security of orphan and HIV/AIDS affected children (GCP/RAF/388/GER)"

INTERVENTION DOCUMENTED

Indoor household fuel-saving stoves for cool areas

CONTEXT

The district of Mafeteng suffers from recurrent droughts, high rates of HIV (Situation Analysis 2004) and high rates of stunting. These issues are particularly important in households with scarce resources that may provide for orphans and vulnerable children (OVC). The main problems identified include: inadequate food quality, poor dietary diversity and lack of awareness of nutritional needs. Additionally, the semi-arid yet cool area of Mafeteng is heavily affected by deforestation which has consequences on local households:

- The **workload** of women and children is aggravated by the time needed to collect wood for fuel.
- Rural families spend at least 20% of their income on **purchasing** wood or charcoal for cooking however fuel cannot always be collected.
- Traditional stoves often emit **smoke** in houses, causing respiratory problems.
- Traditional open-air stoves are fuel consuming and slow in reaching appropriate cooking temperatures. Foods that are not adequately cooked can transmit **food-borne diseases**.
- Finally, families that cannot purchase sufficient fuel might be **unable to consume their food**, in particular poorer families who consume staples and flours which are less expensive but require cooking in order to be consumed.

A pilot project carried out between 2004 and 2008, in line with the National Policy for Food Security, supported livelihoods and food and nutrition security of vulnerable HIV-affected communities. This project was under the umbrella of a wider project for southern Africa which was funded by Germany. The implementing NGO, Send a Cow Lesotho, setup a variety of integrated and complementary activities to improve food production, nutrition and hygiene, among which the the promotion and construction of **fuel-saving stoves**.

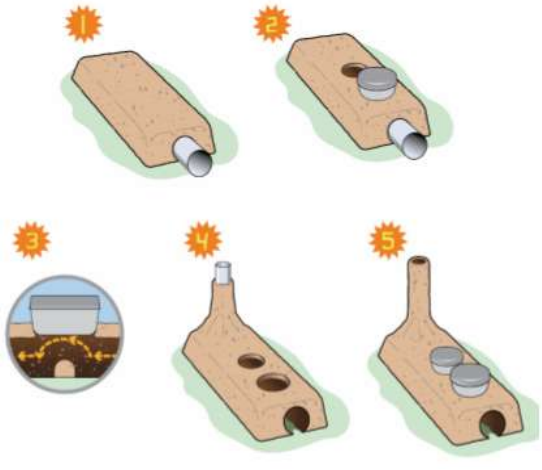
TARGET POPULATION

HIV-affected households; communities hosting orphans and vulnerable children (OVC); rural food insecure communities living in arid or deforested areas.

THE INTERVENTION

Fuel-saving stoves have a **closed structure** that limits heat dispersion. They reach adequate cooking temperatures more quickly, reducing the time necessary to process and the risk of food-borne diseases, and preserving nutritious value of foods. Less fuel is required, meaning that workload and expense to procure fuel are reduced. Moreover, the improved stoves are provided with a **venting system** that emits the smoke directly outside homes through a chimney, dramatically reducing respiratory problems of women and children in-doors.

Four beneficiary groups built different improved cooking stoves according to their different habits and traditions (habit of cooking while sitting or standing, etc.). The materials used are all **inexpensive and readily available in the community**. These materials include: oiled pipes, clay, cow dung, top soil, anthill soil, flat stones and water.



1. Mix the cow dung, top soil, anthill soil and water. Use the mixture to shape the stove around an oiled drainpipe. Use bricks of flat stones to make the structure of the walls and floor, using the mud mixture as mortar and plaster.
2. Make two gaps a little smaller than the size of the pots.
3. Remove carefully the tube when the mud mixture is dry enough.
4. Make your chimney using an oiled pipe to shape the mud mixture and then carefully remove it when the mixture is dry enough.
5. Leave your stove to dry for a few weeks. When you are ready to cook, push timber and sticks into the open end light and push them inside the stove until they are under the pot-holes.

The stove can be built 50cm above the floor level, in-house or outside.
Stoves built in-house should always include a chimney to evacuate smoke outside.

German Federal Ministry of Food, Agriculture and Consumer Protection

Mother cooking on a fuel-saving mud stove, Mafeteng district.

Contacts

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From an environmental point of view, improved stoves are estimated to save up to 33% of fuel when compared to traditional stoves and have a significant impact on deforestation. They improve food processing and provided a good heat source in cool areas. After combustion of timber, ashes can be used to fertilize and improve the water retention of soils in household vegetable gardens.

From a social and security point of view, many areas have security problems and banditry make it dangerous for women and children to wander far from the villages to collect wood for fuel. Constructing improved fuel-saving stoves reduces the time spent outside the village and lowers the risk of being attacked.

STAKEHOLDERS

The emphasis of the project was on capacity building, intersectoral and interagency collaboration. The National Project Steering Committee was co-chaired by the Ministries of Agriculture and Food Security, Health and Social Welfare, the Ministry of Education and the National AIDS Commission. A Technical Working Group composed of FAO, WFP and UNICEF provided technical assistance to the Project Management Team. The District Child Protection Team composed of professional and technical staff from relevant governmental departments and various development partners, oversaw, coordinated and monitored activities at the district level. Community groups were involved from the planning process through participatory approaches. This intervention was implemented by the NGO Send a Cow Lesotho.

CAPACITY BUILDING

A four hour training session is usually sufficient for a “hands-on” demonstration on how to build a fuel-saving stove. Posters and at scale models can be used to illustrate the technique to the participants. In other villages, videos and slides can be used to show the construction of stoves and provide testimonials on the impact that these stoves have on their daily life. However, although these materials are nice to have, success can be achieved by having the following basic requirements: availability of the necessary materials to build fuel-saving stoves, a good trainer and a hands-on learning method. Beneficiaries are encouraged to work in groups to build fuel-saving stoves and asked to complete reflective exercises with 3 or 4 questions to verify that they have memorized the main points and information. Participants should designate someone as the knowledge keeper to take records of the demonstration so that the community can build other fuel-saving stoves even in the absence of the trainer.

MATERIAL PRODUCED

During this project, a *Training Manual* was developed by Send a Cow Lesotho with relevant “how-to-do-it” training material on fuel-saving stoves. Training materials on organic gardening, group dynamics, livestock husbandry, dams, tip-taps, nutrition and marketing was also included.
Other training materials on the construction and use of fuel-saving stoves are available from Send a Cow UK (http://www.cowfiles.com/subjects/dt/make-an-energy-saving-stove) or from the project team (see Contacts).

IMPACT ASSESSMENT

In target communities, farmers master the fuel-saving stoves construction technique. Farmers can increase household incomes through waged peer-training and/or by building and selling the fuel-saving stoves they build. In addition, these stoves have saved wood resources, time and money, and have improved health conditions by reducing fumes in homes.

Reducing "Energy Poverty" is increasingly acknowledged as the "Missing Development Goal". Small-scale farmers are globally the largest farmer group. Safely integrating, intensifying and thus increasing food and energy production for this large group of producers may have the best prospect to improve both local (rural) and national food and energy security and reduce poverty and environmental impact at the same time.
Integrated Food Energy Systems (IFES) aim at addressing these issues by simultaneously producing food and energy. Two main types of IFES can be distinguished:

- Multiple resource use through the diversification of land use and production.
- Multiple resource use through the full utilization of products and by-products/residues.

IFES make positive contributions to both climate change adaptation and mitigation.

www.fao.org/climatechange/climatesmart@151033/en

Set of training materials developed during this project

UPSCALING/REPLICABILITY OF THE PROJECT

The experience described here can be successfully up-scaled and/or replicated in similar contexts. Here are some recommendations:

- The promotion and setup of fuel-saving stoves can be easily integrated to support various projects such as: nutrition, housing, water, sanitation and health.
- For an optimal impact on the nutritional status of beneficiaries and on the environment, this intervention can be integrated by supporting diversification of household and community production, nutrition education (in particular for child feeding), and reforestation and agro-forestry projects.
- Fuel–saving stoves are an ideal complement to Integrated Food Energy Systems (IFES). These farming systems can integrate, intensify and thus increase the simultaneous production of food and energy in communities. This is achieved by combining the production of food and fuel feedstock on the same land through mixed cropping and/or agro-silvo-pastoral systems, and by promoting the adequate use of household wastes and residues as fuel.
- Participatory approaches allow for beneficiaries to be involved in all stages of project activities such as: planning, implementation, monitoring and evaluation.
- The actual promotion and training on fuel-saving stoves should be implemented within interventions supporting food and nutrition security and safety in order to have a relevant impact on the health status of populations.
- The knowledge and experience of local populations should never be ignored or under-estimated: nobody knows the constraints and opportunities of their environment better than they do.