Food and Agriculture Organization of the United Nations

RESILIENCE GOOD PRACTICES

CONFLICTS AND PROTRACTED CRISES

Fuel-efficient mud stoves in Darfur, Sudan

Support for widespread adoption of fuel-efficient mud stoves (FES) to strengthen resilience to conflict in protracted crises

Fuel-efficient stoves (FES) can make an important contribution in refugee and IDP camps, but also in other areas with high population density and scarce natural resources.

Location → *Five states of Darfur, Sudan, with specific focus on Fashir (North Darfur) and Genaina (West Darfur) for training.*

Target group → *Internally displaced women, traditionally responsible for cooking and fuelwood collection.*

Gender → *Women are disproportionately affected by reduced access to fuelwood, as they are traditionally responsible for collecting fuelwood and cooking. Training in FES technology can reduce the exposure of women and girls to sexual and gender-based violence associated with fuelwood collection, ease their work burden and empower women economically by giving them skills in manufacturing stoves for sale.*

Nutrition → *FES are key to addressing nutrition and food security of displaced populations in Darfur. Traditional stoves consume significant wood energy, a limited resource for rural households. With restricted access to fuelwood, families cannot have a diversified diet, risk eating undercooked food and relying on less nutritious foods that do not require cooking, or may skip meals.*

→ Context

The protracted conflict since 2003 in Darfur, Sudan has resulted in massive loss of human lives and assets, disrupted livelihoods and led to severe food insecurity in some areas. An estimated 60 percent out of a total population of 7-8 million is currently displaced (March 2015). Internally Displaced Persons (IDP) and their host communities have limited livelihood options and often rely on unsustainable coping strategies, such as the unmanaged cutting of trees and shrubs for fuelwood and charcoal production. This places an additional burden on Darfur's fragile ecosystem.

→ Challenge

Access and availability of fuelwood has become a highly contentious issue, with implications for human and environmental security due to:

- Unsustainable exploitation of forest resources
- Increased conflict over scarce forest and tree resources
- Exposure of women and girls to sexual and gender-based violence (SGBV) while collecting fuelwood
- The high cost of fuelwood and charcoal on the markets, if purchased, especially when used inefficiently
- Health and safety risks associated with cooking on traditional 3-stone fires

→ Methodological approach

- Selection of beneficiaries for practical and theoretical training, targeting women and involving women leaders
- Awareness-raising on the need to reduce wood cutting, so as to conserve forests and protect the environment
- Disseminating the message that fuel-efficient stoves reduce fuelwood consumption per meal and curb smoke emissions from using open fires inside dwellings
- Improving current practices through a combination of theoretical training, practical demonstrations, group work, individual production with local materials and training on stove maintenance

What is a fuel-efficient stove (FES)?

Fuel-Efficient Stoves (FES) are specifically designed to reduce fuel consumption and provide a substitute for the traditional three-stone fire. They can be made of mud, clay or metal, and they can use different types of fuels, such as fuelwood, charcoal, briquettes, biofuels, liquefied petroleum gas (LPG) or kerosene.

→ Impacts **Increased livelihood resilience to threats and crises:**

- Exposure to sexual and gender-based violence (SGBV) faced by women and girls is reduced, since they collect fuelwood less often
- Up to 60 percent of fuelwood traditionally consumed by the commonly used three-stone fire is saved due to use of FES
- Women can earn money from selling stoves
- Women and children's health is better protected from the smoke emissions of traditional stoves
- Containment of cooking fires, as a result of using FES, reduces safety risks
- Vegetation cover is improved due to tree planting and reduced fuelwood extraction.

Exposure of women and girls to sexual and gender-based violence (SGBV) while collecting fuelwood is reduced

→ Sustainability

- FES have been successfully adopted by 74% of the population of South Darfur and 95% of the population of West Darfur
- The life span of the improved mud stove is estimated at between 6 and 36 months
- Training on the production and use of FES implemented by FAO in 1990 has been in place for more than 15 years
- Beneficiairies and IDPs are trained to produce FES using easily accessible, low-cost local materials. Sales of stoves generate additional income
- Trainees are taught how to make stoves in different locations, according to needs and climate conditions
- FES training includes guidance on stove maintenance.

→ Replicability

This practice can be replicated and upscaled in situations of crisis and disaster involving displaced persons and/or temporary settlements (camps, etc.). Replicability and upscaling can be further ensured through these recommendations:

- Pursue awareness-raising among decision-makers and communities on benefits of FES
- Clarify the link between household energy consumption, impacts on surrounding forests and environment and the need for rational use of available resources to meet the demand of both the current population and future generations
- Provide flexible stove designs that can be adjusted to local conditions based on consultations with community stakeholders, especially women, who are the main users
- Create a core training team of trainers (if possible, within the community) to monitor, report and share the results with stakeholders and researchers
- Ensure a reference team that communities can consult in each location.

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SAFE -Safe Access to Fuel and Energy

FAO is carrying out resilience building activities under the SAFE initiative in many different countries, mainly in Africa and Asia. SAFE addresses the multi-sectoral challenges linked to collection, production and use of fuel in crisis settings. SAFE activities include the provision and/or local production of fuel-efficient stoves, sustainable natural resource management for the supply of fuel and promotion of alternative, less fuelwood-dependent livelihood activities.


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→ More information

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- Assessing the effectiveness of fuel-efficient stoves programming: www.proactnetwork.org/proactwebsite_3/images/Documents/Publications/ProAct_Projects_Reports/3.2.6.FES_Report_ProAct.pdf
- Conflict and forest resources in Darfur: www.fao.org/3/a-i4447e/i4447e07.pdf
- Ensuring safe access to energy for all (p.4-5): www.fao.org/3/a-i4964e.pdf

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www.fao.org/3/a-as547e.pdf

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