



Assessing FAO's fuel-efficient stove intervention

A post-distribution assessment to enhance Safe Access to Fuel and Energy (SAFE)

Context

Armed conflict in northeastern Nigeria – Adamawa, Borno and Yobe States – has driven millions from their homes and uprooted agriculture-based livelihoods. In worst affected Borno State, poor energy access has exposed vulnerable people to a number of challenges linked to food insecurity and malnutrition (e.g. insufficient fuel to cook food), deforestation (e.g. unsustainable felling of trees for fuel), protection risks (e.g. harassment, assault, physical and sexual violence when collecting wood fuel) and health risks (smoke inhalation leading to respiratory illnesses).

The main types of energy resources in northeastern Nigeria are firewood and charcoal. When using inefficient energy technologies, such as open fires, the demand for these energy resources is high. In response, FAO is implementing SAFE, following a three-way programmatic approach, namely: (i) reducing energy demand by promoting fuel-efficient technologies; (ii) increasing energy supply through sustainable forestry management practices; and (iii) promoting safe and sustainable livelihoods.

With the support of Norway and in partnership with the International Centre for Energy, Environment and Development, FAO established three production centres in Borno for fuel-efficient stoves (FES) in 2017 and trained 100 local artisans in their production and marketing. Between May and August 2018, the first 5 000 locally produced cooking stoves were distributed in Maiduguri, Jere and Konduga local government areas of Borno. In order to increase impact for existing FAO beneficiaries, the stove distribution was linked to FAO's micro-gardening programme, adding another dimension of resilience to affected households. To evaluate the impact of the stove distribution (December 2018), FAO undertook a household survey including 111 female beneficiaries from camps in and around Maiduguri. The beneficiaries were using the stove for a period of 5 to 6 months.

Key findings

Improved access to energy

- 98.2 percent of the respondents were still using the fuel-efficient stove at the time of the assessment.
- 100 percent of respondents indicated the FES has improved their energy situation, and that they can better cover in their daily cooking fuel needs.
- 46.9 percent of respondents indicated that they do not have sufficient access to fuel. Although the figure is still high, it is less than prior to the distribution of the FES (76 percent in April 2018).



In numbers



Support provided:
5 000 locally produced cooking stoves and training



Number of people assisted:
5 000 IDPs, returnees and host community members



Evaluation period:
December 2018



Geographic coverage:
Maiduguri Municipal Council, Jere and Konduga local government areas in Borno State

Poor energy access has exposed vulnerable people to challenges linked to food insecurity and malnutrition.

Reduced fuel use and costs

- The cost of firewood or charcoal for one day of cooking is on average USD 0.25 to USD 0.55, increasing households' savings.
- When using the FES, an average of 2.4 sticks of firewood are used compared with 6 sticks when cooking on the three stones fire – a reduction of 60 percent.
- On a weekly basis, the respondents indicated they saved USD 1.2. In addition to increasing food security, the FES also contributes to the household economics. Respondents indicated that the money saved is mainly spent on food, school fees, etc.

Reduced the risk of physical harm to women and girls

- Before using the FES, respondents indicated to go out to collect firewood four times per week on average. Since using the FES, this amount has decreased significantly, to 1–2 times per week. In addition, 97.3 percent indicated that the time spent on cooking has reduced with women saving on average 1.10 hour/day in cooking time. Respondents indicated they used the saved time for other productive activities such as cap making or caring for children.
- 92.8 percent of respondents have seen a significant decline in protection risks (e.g. robbery, abduction, physical and sexual violence) when going out to collect firewood.

Reduced health risks

- Since using the FES, 98.2 percent of respondents shared that there is a decrease in the incidence of health issues related to cooking processes. Respondents indicated that 'coughing/chest pain' and 'eye pain/irritation' has decreased significantly.

High adoption of the fuel-efficient stoves

- 99 percent of the beneficiaries interviewed are satisfied with the FES. On a scale of ten, the FES received an average of 8.7 out of 10.
- In general, after 5-6 months, the quality of the FES is still very high. On a scale of ten, the respondents indicated that the current state of their FES is 8.1 out of 10.

Conclusions

With nearly 100 percent of respondents still using the stove after 5 to 6 months, the FES has had a high adoption rate and acceptability in the State. In terms of firewood savings, compared with the three stones fire, about 60 percent of wood has been saved. The intervention has also benefited households' general food security and nutrition status, decreased exposure to violence during foraging, lessened women's work burden and has had a positive impact on health. In addition, the reduced demand for fuel will also decrease the pressure on overstressed natural resources.

To enhance the intervention, FAO is in the process of developing a dual type of stove that accommodates both firewood and charcoal. Through its engagement with the stove producers trained, FAO will continue to tailor this technology and others to the needs of the targeted communities.



Promoting fuel-efficient technologies enhances sustainable livelihoods by reducing energy demand and increasing firewood savings.

SAFE decreases exposure to violence during foraging, lessens women's work burden and reduces health risks.

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