



# 7 PROMOTING FUEL-SAVING STOVES

**FIREWOOD COLLECTION IS A MAJOR DRIVER OF DEFORESTATION IN RURAL ETHIOPIA. FUEL-EFFICIENT COOKING STOVES ARE A COST-EFFECTIVE AND PRACTICAL SOLUTION FOR MITIGATING CLIMATE CHANGE, PROTECTING TREES AND VEGETATION, IMPROVING FAMILIES' HEALTH AND REDUCING WOMEN'S WORKLOAD.**

## OVERVIEW

Wood fuel is a key source of energy for an estimated two and a half billion people in developing countries. According to the World Energy Council, nearly half of the world's population relies on traditional biomass fuels such as wood and charcoal for cooking. In Ethiopia, over 90% of households are estimated to cook with biomass.

Recognising the urgent need to address household energy demands and reduce the debilitating health, social and environmental impacts of traditional cookstoves, the government of Ethiopia has recently published an ambitious but achievable five-year plan for developing the energy sector under the overarching Growth and Transformation Plan. Specifically, the government set a target, among others, to distribute 9.4 million fuel-saving cookstoves over five years.

The CSA consortium partners have worked extensively in Ethiopia's SNNPR and Oromia Regions since 2014 to catalyse the uptake of improved fuel-efficient stoves (FES) within rural communities. The project was in line with Ethiopia's National Improved Cook Stove Programme (NICSP), which was designed to increase Ethiopia's biomass use efficiency through the distribution of fuel-efficient cookstoves. This falls under the larger gamut of Ethiopia's vision of becoming a middle-income Climate-Resilient Green Economy by the year 2025, in which the energy sector plays a key role.

The project promoted fuel-saving stoves as a means of environmental protection, job creation and improvement of household nutrition. Fuel-saving stoves were distributed to women over five years across all the districts the project operated in, helping to:

- Reduce deforestation from firewood collection and/or making space for rearing cattle to produce dung for biogas stoves.
- Minimise exposure to harmful smoke, especially for women and children.
- Cut the amount of time people spend collecting firewood.
- Reduce cooking and fuel costs.

Kitchen performance tests conducted by Vita in Arba Minch town indicated that Mirt stoves reduced rural household fuel consumption by 50-70% per month. The research testified that Mirt stoves save about 0.184 kg of wood for every batch of injera cooked, compared to the traditional 'three seats' stove, known as 'gulicha' stoves. Tikkil stoves are similarly more efficient.

## CLIMATE-SMART AGRICULTURE

The five-year Improving Smallholder Livelihoods through Climate-Smart Agricultural Economic Development project aimed to alleviate poverty and build resilient, sustainable livelihoods in Ethiopia's SNNP and Oromia regions.

Funded by Irish Aid, a consortium of SOS Sahel Ethiopia, Self Help Africa, Vita and Farm Africa worked with more than 50,000 households, with a particular focus on poor farmers, women, children and landless youth. This booklet is one of a series of seven focusing on each of the project's key components:

1. Small-scale irrigation
2. Cooperative-based seed multiplication systems
3. Mango value chain development
4. Ecosystem-based adaptation to climate change
5. Engaging women in entrepreneurial farming businesses
6. Promoting CSA through revitalising Farmer Training Centres
7. Promoting fuel-saving stoves

 **FARM AFRICA**

 **Self Help Africa**

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Building Sustainable Livelihoods

Each beneficiary contributed 30 to 50% of the cost of making a stove, depending on their income, with the remaining value covered by the project.

The sale price of the stoves was set on an annual basis by a team composed of three staff members from the woreda's Mines and Energy Department. The team considered input costs, such as cement and red ash, when pricing the stoves.

**Project activities included:**

- Organising nine Mirt stove producer and supplier groups and three Tikkil stove producer groups.
- Providing 15-30 days vocational training on stove production.
- Constructing three fuel-saving stove workshops equipped with moulds and start-up production materials.
- Improving access to the water supplies needed for stove construction: rainwater harvesting technologies were installed and the Farawocha workshop was linked to the Bombe town water supply pipeline.
- Promoting improved fuel-saving stove usage in the community, including subsidising poorer households' purchases of stoves from groups supported by the project.
- Creating market linkages between stove producers' cooperatives, government offices and CSOs.
- Piloting a community-led approach to eradicating gulicha stoves.

**ACHIEVEMENTS**

In order to ensure the sustainable supply and use of improved stoves in the communities, the project established 12 stove-producing women's groups in six woredas. Out of the 12 groups, nine groups produce and sell Mirt stoves and the other three produce Tikkil stoves.

Across all project areas, 14,036 households adopted subsidised, fuel-saving cookstoves because of the project.<sup>1</sup>

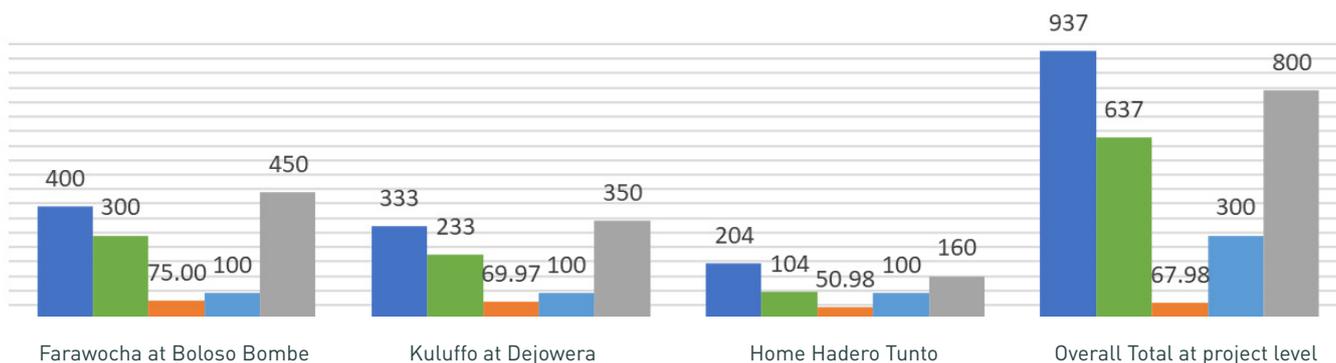
Once local women were taught how to construct stoves, they were eager to start production. Tools such as moulds were purchased by the community. Local demand for the fuel-efficient stoves increased the communities' confidence in investing in production. The project found that the women who were organised into Village Savings and Loan Associations to produce and sell stoves had the greatest access to materials and resources. Three Mirt fuel-saving stove producer cooperatives were organised and have been producing and selling their products in the local market and neighbouring kebeles.

The project resulted in lower fuel costs for households, and the incomes of women involved in the production of fuel-saving stoves also increased and were diversified.

<sup>1</sup> ISLR CSA project consortium, 2019. Fifth year annual report. SOS Sahel Ethiopia, Self Help Africa, Vita and Farm Africa. Addis Ababa.

**Fuel saving stoves producers' cooperatives production, marketing and income status**

- Number of stoves produced
- Number of stoves sold
- Percentage of stoves sold
- Number of stoves in cooperative stock
- Money earned (Birr)



Status by respective kebele and woreda

## HOW FUEL-SAVING STOVES ARE SAVING TREES AND IMPROVING WOMEN'S INCOMES

In Farawocha kebele, a fuel-saving stove producers' association was set up in 2017 by 33 members looking to develop new sources of income and reduce deforestation. The association was supported by Farm Africa through this project. Working with the local administration, Farm Africa provided the members with the equipment and training they needed to make fuel-saving cooking stoves.

Azalech Asfaw, the association's chairperson, explained the organisation's origins: **"Five of our members attended a training of trainers course run by Farm Africa. In turn, they passed their knowledge onto all of the association's other members. The course looked at growing alternative sources of income, how to produce [fuel-saving] stoves, the benefits of using them, the need to protect trees and the importance of saving money."**

Before the training, the association's members didn't know how to produce or use fuel-saving stoves.

**"Fuel-saving stoves are new to Bombe Woreda,"** said Azalech. **"It's only been seven months since we were introduced to the equipment but they are now relatively popular. We proved that the stoves save fuel, time and energy. We bake injera and bread while making sauce, tea or coffee. This saves firewood and time. We are selling the stoves door-to-door."**

The stoves allow for smoke-free cooking, and not only provide the members with an income stream, but also safeguard their health and keep their homes cleaner.

## RADIA'S STORY

Radia used to bake injera using a traditional open smoky stove, which used a lot of expensive wood and was a danger to her health. Radia spent much of her time maintaining and repairing the stove. Her children did not know how to operate the stove safely.

With technical and financial support from the project, Radia constructed a fuel-saving stove. The whole family are enjoying the benefits.

Radia is delighted that the new stove does not damage the clay plates used to bake injera, which had been costly to replace. She can put multiple things in the oven at the same time and can even have her neighbours over to do their baking with little disruption, thus strengthening her friendships.

Most importantly, Radia is not exposed to the open fire and the toxins carried in the smoke. With her old stove, she had to sit cross-legged, which used to cause her pain in her hips.

The family's livestock health has improved, as the maize stems she used to throw in the old fire are being used to feed the animals. There is growing demand for fuel-saving stoves. Two of Radia's neighbours contacted her to find out more about her fuel-saving stove and have started using improved fuel-saving stove.





## KEY LEARNING

After four years of project implementation, partners found that the uptake of fuel-efficient cookstoves was very low. Vita/RTI, one of the consortium members, came up with a Community-led Total Sosist Gulicha Free approach derived from CLTS (Community-led Total Sanitation) principles that have helped to free many woredas across Ethiopia from open defecation. Vita hired the pioneer of CLTS in Bangladesh to customise the approach to promote improved cookstoves by enhancing communities' awareness of the role improved cookstoves play in improving health and reducing the degradation of the natural environment.

The approach is being piloted in all areas the consortium operates in and has showed promising results. Vita has started linking improved cookstove usage with carbon financing so as to create alternative financing streams to support the rollout of improved cooking stoves. This financing mechanism will be adopted by all CSA partners in the next phase of the project.

## RECOMMENDATIONS

The fuel-efficient stove production women's enterprises built market linkages with regional, zonal and woreda-level government offices dedicated to cooperative promotion and market development, and the Bureau of Women, Children and Youth Affairs. As a result, they started supplying stoves to programmes managed by government and NGOs working in the energy sectors. These linkages will support continued stove production and distribution among local communities. Additional marketing was undertaken in neighbouring kebeles (wards) and woredas in order to expand distribution and coverage.

The project can be replicated in any area as the technology, raw materials and skills and training required are simple. There is also a growing demand for fuel-saving stoves. The Mirt stove purchase price, approximately 200 Birr, is also affordable to rural farmers, which is critical to maintaining growing demand for the product.