

# IMPACT

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## QUALITY, EFFICIENT BIOMASS STOVES REACH UGANDAN HOUSEHOLDS VIA STRENGTHENED SUPPLY CHAINS

*An ESMAP-funded grant facility that began in 2017, implemented by the Private Sector Foundation Uganda (PSFU), put in place market incentives that established eight new manufacturer-distributor partnerships. The facility introduced five types of new, high-efficiency, quality-assured biomass stoves. Well exceeding the target goal, over 72,000 of these stoves were delivered and adopted by Ugandan households as of September 2020. These fuel-efficient stoves led to a 30 percent decrease in CO<sub>2</sub> emissions (compared to those they replaced) and save 20,740 tons of charcoal per year. They have also led to savings in cooking time and money.*

### LACK OF ACCESS TO CLEAN COOKING STOVES

About 95 percent of Ugandans still use solid biomass fuels such as firewood for cooking. Uganda ranked in the top 10 largest clean cooking access-deficit countries (by proportion of people) and third largest by overall population size deficit, according to the ESMAP-funded Sustainable Energy for All (SEforALL) Tracking SDG7 [Energy Progress Report 2020](#). On average, a household spends as much as \$26, about 14 percent of their total monthly income, for a 75 kg bag of charcoal that lasts about a month. These prices are on the rise; in early 2020 charcoal prices were 40 percent higher compared to 2 years earlier—well above Uganda's average annual inflation of 5 percent. Some of the factors responsible for this high access deficit rate include: the inability to access improved and efficient stoves due to missing supply chain links, limited awareness regarding existing products on the market, and insufficient household incomes to make such a purchase.

The sector had long endured a market inundated with stoves of patchy quality, offering limited value to households, and supply was driven by vertical delivery models where manufacturers financed and distributed their stoves across the country using limited distribution infrastructure. This combination was not conducive to delivery scalability, nor was it able to meet the quality that customers need or want.

### UGANDA CLEAN COOKING PROJECT FUNDS QUALITY STOVE DEVELOPMENT

In 2017, the \$2.2 million [Uganda Clean Cooking Supply Chain Expansion Project](#)—funded by ESMAP through a grant to the World Bank Uganda energy portfolio and implemented by the Private Sector Foundation Uganda (PSFU)—set up the Distribution Challenge Fund, a grant facility to address gaps in the supply chain for quality-assured, efficient biomass stoves and enhance companies' efforts to engage consumers via marketing and awareness-raising campaigns. PSFU managed the disbursements and liaised with clean cooking enterprises and the independent verification agency, which verified the stove sales for each payment period.

Image Source: ©Envirofit



The fund comprised several lines of support designed as market incentives to attract new players in the sector and establish partnerships. The Distribution Challenge Fund provided one-off upfront matching grants and ongoing results-based financing for scaling up distribution networks for select products. It also funded cost-sharing high-impact marketing campaigns and consumer engagement to raise awareness and enable flexible payment methods.

The design was based on a multi-phase, comprehensive preparation period preceding the project. Activities included: six-month consumer trials in households to test product compatibility and consumer willingness-to-pay, as well as laboratory and field-based product performance and durability assessments in order to avoid promoting poor-quality products. These preparation activities ensured that only products that met the minimum quality criteria (at least 35 percent thermal efficiency per the International Organization for Standardization (ISO) performance targets for cookstoves) and met consumer expectations were eligible to compete.

## THE SUCCESSFUL UPTICK OF STOVE USAGE

To maximize results during project implementation, it was important to understand why some customers purchased stoves and others did not and to determine what drives customers to make such decisions. To this end, a behavioral diagnostic study was commissioned, exploring these nuances and providing actionable recommendations that were subsequently implemented through a market activation campaign.

The study was carried out in collaboration with the World Bank's Mind, Behavior, and Development Unit. The study utilized a behavior-change framework to identify "beneath-the-surface" behavioral barriers in consumer choices, including the preferences and roles of men and women. The interventions implemented, as a result of this study's recommendations, included use of project-supported brand activation

Image Source: ©Supa Sigiri



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This stove has made my cooking so easy these days. I wish everyone knew good it is. It feels like I'm using gas.

*Hellen, Jikoko Stove user (Kampala)*

events in strategic hotspots around the city and suburbs, radio advertisements, digital marketing, and social media outreach ([Facebook](#), Twitter, and Instagram), plus trivia competitions and use of community influencers. Four long-term and five short-term sales access points were set up by the campaign organizers in strategic locations in the Kampala and Wakiso districts. These interventions proved to be crucial in raising awareness about the products supported by the program. They also provided a medium through which users could explore different models and choose the best product for their needs.

Throughout the project's implementation, the Bank coordinated with GIZ, the German Development Agency, which had been supporting artisanal manufacturers of biomass stoves through improved kilns and production facilities. The ESMAP grant facilitated the distribution of these products into the market (in addition to the ones that were industrially manufactured) by strengthening the supply chain.

## PROGRAM EXCEEDS TARGET GOALS, WITH EXCELLENT EMISSIONS REDUCTION RESULTS AND COST SAVINGS

As of September 2020, 72,535 stove sales have been supported by this program, well exceeding the 45,000 pilot target. The project stoves are used an average of twice a day, and female household heads report they are much more fuel efficient and fast compared to other stoves on the market.

A [Facebook video campaign](#) by the ESMAP-funded, World Bank-implemented Uganda Clean Cooking Supply Chain Expansion Project advertised the benefits of the fuel-efficient Supa Sigiri-brand stoves and how people can access a loan to pay for one.



Image Source: ©Sophie Ganon / Biolite

The stoves have led to the reduction of 60,831 tons of CO<sub>2</sub> per year—a 30 percent emission reduction rate compared to the baseline, and a savings rate of 20,740 tons of charcoal per year. This represents about a 36 percent average monthly fuel consumption reduction for households and an equivalent amount in financial savings. Women also report the stoves free up 30–90 minutes per day to do other household chores, spend time with children, or rest.

The project closed September 30, 2020.

## CATALYZING FURTHER INVESTMENTS TO TRANSITION TO CLEAN FUELS

The experience, momentum, successful implementation, and intermediate results of this innovative pilot project demonstrated the necessity for continuing to develop a market for clean cooking. The project's lessons helped inform the design of and facilitated the inclusion of a clean cooking investment activity in the upcoming Electricity Access Scale-up Project, a \$340 million IDA-financed project. This operation allocated \$10 million in IDA financing, with a \$10 million matching grant from ESMAP's Clean Cooking Fund. This investment is expected to leverage another \$10 million in private sector financing. The funds will support both biomass efficiency and transition to clean fuels.

Under the new scaled-up operation, the Bank plans to expand Uganda's clean cooking program by establishing a debt facility for financing off-grid solar and clean cooking solutions (supplier financing and consumer financing), as well as a results-based financing mechanism for clean cooking solutions. The solutions will expand beyond biomass efficiency to include clean fuels such as LPG, ethanol, biogas, and electricity. Technical support will finance small- and medium-enterprise business development and strengthen the monitoring and measurement of their new impacts.

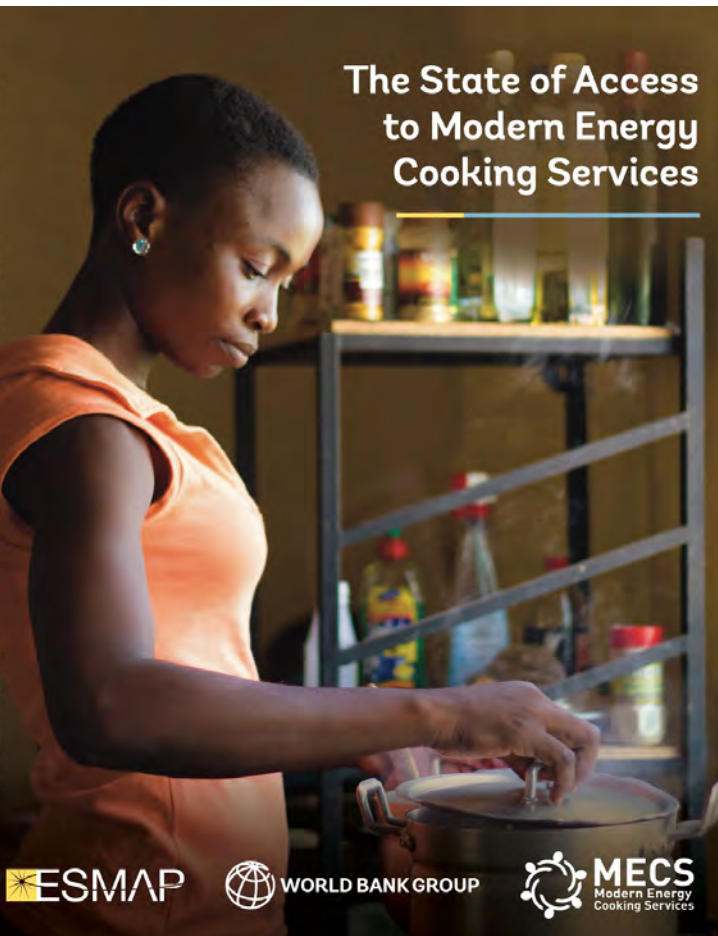
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It's a super product. Cooking faster, charcoal consumption is just “Wow”!

*Satya, Jikoko Stove user (Kampala)*

Through ESMAP's Clean Cooking Fund (CCF), other partners are now contributing towards leveraging IDA and private sector financing and scaling up clean cooking activities under the Electricity Access Scale-up Project.

The CCF is a \$500 million fund that provides financial and technical support, primarily through results-based funding grants, to help countries incentivize the private sector to deliver modern cooking services. Its goal is to help accelerate progress toward universal access to clean cooking by 2030.



## The State of Access to Modern Energy Cooking Services

### Modern Energy Cooking Services

ESMAP's 2020 [State of Access to Modern Energy Cooking Services Report](#) provided recommendations for countries to improve their cooking energy ecosystem. These include:

- Mobilizing data and financial resources, creating innovative technologies, and developing partnerships
- Making clean cooking a political priority to help develop the enabling environment through national policies, strategies, and energy planning
- Developing regulations and standards contextualized to local conditions to promote better market development for clean cooking solutions
- Leveraging clean cooking infrastructure and investment resources within each country, while reflecting household cooking needs for sustained adoption

Image Source: ©World Bank

### ESMAP MISSION

The **Energy Sector Management Assistance Program (ESMAP)** is a partnership between the [World Bank](#) and [19 partners](#) to help low- and middle-income countries reduce poverty and boost growth through sustainable energy solutions. ESMAP's analytical and advisory services are fully integrated within the World Bank's country financing and policy dialogue in the energy sector. Through the World Bank Group (WBG), ESMAP works to accelerate the energy transition required to achieve Sustainable Development Goal 7 ([SDG7](#)) to ensure access to affordable, reliable, sustainable, and modern energy for all. It helps to shape WBG strategies and programs to achieve the [WBG Climate Action Plan](#) targets.