

Restaurants with Efficient Cookstoves

KENYA

Project name	Energising Development (EnDev) Kenya
Project region	Kenya
Lead executing agency	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
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Productive use of thermal energy

Alongside electricity and mechanical energy, thermal energy plays a key role in processing goods and offering services, particularly in remote areas where biomass and solar radiation are often the only source of energy available. Thermal energy – used for cooking, heating, drying and smoking – is an essential input for production processes in agricultural businesses, small industries and commercial services.

Restaurants in Kenya

Most restaurants in the rural areas of Kenya use firewood for cooking, mainly on a traditional three-stone fire. Normally these businesses have to buy expensive firewood on a daily basis due to their small-scale operations. One 10kg head load of fuelwood costs about KES 120-200 (USD 2–3), varying between regions. Fuel costs therefore comprise a substantial part of the running costs of these businesses.





Owners of small restaurants are often unaware of more efficient cooking technologies, such as an improved cookstove that could help them increase their profits.

At Lake Victoria, a variety of small restaurants offer traditional meals. The use of improved cookstoves can help these businesses to save substantial amounts of firewood, which translates directly into increased profits.

Employees benefit from the technology due to fewer smoke emissions and therefore healthier work environments. Less smoke also means more comfort for the guests, which can also enhance income for the business owner.

Enhancing the energy efficiency of restaurants

Energising Development in Kenya enables the adoption of efficient energy technologies by individual enterprises, institutions or groups who engage in food and agricultural processing. Support is provided in the form of awareness raising about the new technology among energy users, as well as training in basic business skills for stove producers.



A core activity of the project is to identify restaurants that use three-stone fires, organise forums to raise awareness of the benefits of improved cookstoves, and inform people on how to access the technology. Technicians trained in the construction of improved cookstoves are also introduced to potential clients during these forums. Once a business owner has decided to acquire an improved cookstove, he or she can directly approach one of these technicians to place an order.

The project has also established a loan facility with two banks, specifically tailored for the acquisition of improved cookstoves by small restaurant owners. However, due to the small size of investment required, very few people actually need to take a loan to finance a stove.

Providing efficient cooking technologies

To provide restaurants with efficient cooking technologies, the Institutional Brick Rocket Stove is distributed. This fixed stove is built with durable fired bricks and no moving parts. A side inlet allows more air into the chamber for an optimal combustion process. When used correctly, the rocket stove uses up to 60 per cent less firewood than a three-stone fireplace. A chimney made from sheet metal

can also be added. The technology is user-friendly and very easy to operate. Depending on the size and type of material used in stove construction, the cost can vary between USD 10 and USD 75. The combustion chamber is the most important part of the stove, considering the frequency and intensity of use in restaurants. It is recommended that fired clay bricks are used, to ensure longer life spans. With other materials the fire chamber would grow larger over time due to wear and tear, thus diminishing the stove's efficiency. Correct usage and maintenance procedures are also important to retain high efficiency. Removing the ash on a daily basis before starting the fire allows proper airflow into the combustion chamber. The biggest challenge for small restaurants is the maintenance of the stove: owners are very focused on making money, often omitting to carry out necessary repairs. Consequently, continuous awareness raising and follow-up visits are very important, especially at the beginning.

Okelo's stoves save money and attract more customers

Joyce Apondi Okelo owns a small restaurant in a fishing community on Lake Victoria. She sells traditional tilapia fish with ugali (maize porridge), to approximately 100-150 customers



per day. Before Mrs. Okelo invested in a brick rocket stove, she had to cook on a three-stone fireplace, which created a lot of smoke and a high demand for firewood. Today, she only needs half the firewood that was previously used. Thus, Okelo saves about KES 600 (USD 7) per day – a considerable amount given that most people’s daily income barely exceeds KES 200. For comparison, a portion of fish and ugali costs KES 150 (USD 2). Okelo has invested around KES 14,000 (USD 165) in two stoves. ‘The stoves have long since paid for themselves,’

Okelo reports. The amortisation period was only 25 days. Additionally, the stoves cook much faster, raising the quality of service and helping to generate more income. Motivated by increased customers due to reduced smoke, some restaurants decided to attract even more customers by renovating their eating areas with new chairs, tables and tiled flooring.

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