Project summary

This project promotes energy efficient cook stoves for rural communities in Siaya County in Nyanza Province, Western Kenya. Community Savings and Loaning (CSL) Groups enhance the financial capacities of rural households in the project area using a traditional three-stone fireplace for cooking and thereby burn large amounts of firewood in a very inefficient way. This is an important driver for deforestation in the region.

Project benefits

The program is helping to reduce CO₂ while making a significant contribution to sustainable development in the region:

- Community saving and loaning groups lead to the financial empowerment of the local people and make an efficient cook stove affordable for all villagers.
- The use of improved cook stoves reduces the demand for firewood. This leads to a reduction of CO₂ emissions and protects the local forests.
- The new stoves reduce smoke emissions, thus improving indoor air quality. This has a positive effect on the respiratory health of women and children.
- By using local materials to construct the cook stoves, the project supports the local economy.
Facts and figures on the carbon offset project

<table>
<thead>
<tr>
<th>Project location</th>
<th>Kenya, Siaya</th>
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<tbody>
<tr>
<td>Project standard</td>
<td>Gold Standard VER</td>
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<tr>
<td>Project type</td>
<td>Energy efficiency</td>
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<tr>
<td>Emission reductions</td>
<td>316,080 t CO₂e (over 7 years)</td>
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<td>Situation without project</td>
<td>Use of non-renewable biomass fuels for cooking</td>
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<td>Project start</td>
<td>October 2010</td>
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The project country and region

Kenya represents many different people and cultures. It has numerous wildlife reserves containing thousands of animal species. With savannah grasslands to forests and mountains to desert landscapes, the country’s geography is as diverse as its people.

Kenya still struggles with a low electrification rate. In the project region Siaya, as in many rural regions in developing countries, supply through modern energy carriers is expensive and limited.

Half of the population is in a state of poverty. To meet their basic energy needs, households rely on locally available biomass fuels. Almost 90 per cent of households use firewood for cooking. Households in Siaya County traditionally cook on open fires consisting of three stones, thereby burning large amounts of fuel wood in an inefficient way and using much more firewood than can regrow.

Almost all of the rural households collect firewood themselves, which takes them from 5 up to 20 hours per week. To help them use less firewood, the myclimate carbon offset project is helping to distribute and sell energy-efficient cook stoves.

Indicator

<table>
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<tr>
<th>Indicator</th>
<th>Kenya</th>
<th>Switzerland</th>
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<tbody>
<tr>
<td>Total area</td>
<td>580,367 km²</td>
<td>41,285 km²</td>
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<tr>
<td>GDP in USD per capita (2010, nominal)</td>
<td>775 USD</td>
<td>67,464 USD</td>
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<tr>
<td>Share of population living below the national poverty lines (2010)</td>
<td>58 %</td>
<td>6.9 %</td>
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<td>Energy use per capita (kg of oil, 2009)</td>
<td>474 kg</td>
<td>3,362 kg</td>
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<tr>
<td>CO₂ emissions per capita (in 2008)</td>
<td>0.3 t</td>
<td>5.3 t</td>
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Table: Kenya vs. Switzerland. (Source: fairunterwegs.org, 2012; World Development Indicators, web.worldbank.org; indexmundi.com; Bundesamt für Statistik, 2010)
How the project is implemented

This project is being developed as a carbon offset project by myclimate and implemented by its local Kenyan partner, the Tembea Youth Centre for Sustainable Development based in Ugunja, Kenya. The construction of 48,900 completely efficient cook stoves within seven years for households in Siaya County will reduce the negative ecological impacts of the traditional cook stoves.

This carbon offset project is certified by the Gold Standard Foundation. Tembea started the implementation in October 2010 with the construction of the first efficient cook stove. It is expected that the stoves installed will be in operation for the entire duration of the project’s crediting period.

The cook stoves

The “Tembea stove” requires specialist expertise for its installation. The dimensions of the stoves in particular are crucial for their efficiency, and therefore stove construction requires specially trained personnel. At least fifty local artisans have been identified and trained in stove construction and household mobilisation by the project management on site.

The traditional cook stove

Exposure to smoke from traditional cook stoves – the primary means of cooking and heating for nearly three billion people in the developing world – causes two million premature deaths annually, with women and young children the most affected. The traditional stoves compel women and children to spend many hours each week collecting wood.

Studies show that in Kenya 28,800 children below 14 years of age died as a result of acute respiratory infections in 2004. According to the WHO, indoor smoke is the world’s biggest health challenge.

The use of wood fuels for cooking also increases deforestation and contributes to climate change on a regional and global level.

Table: Traditional cook stove in comparison with improved cook stove (Sources: World Lung Foundation, The Acute Respiratory Infections Atlas, 2010; Global Alliance for Clean Cookstoves (http://cleancookstoves.org), February 2012; Energy Sector Management Assistance Program (http://www.esmap.org/esmap), February 2012.)

The new, improved cook stove

The Tembea stoves are biomass rocket stoves designed for burning wood and have two cooking units that can be fired separately. The stoves are permanently installed in households and reduce firewood consumption by approximately 40-50 per cent.

The efficient cook stoves are constructed with locally available materials such as mud, bricks and sawdust.

The yearly costs spent on firewood and the weekly time for the firewood collection can be reduced by approximately 50 per cent.

By February 2012, 5,455 Tembea stoves had been installed in the project region.
Community Saving and Loaning groups

The strategy of local microfinance groups seeks to address the unmet needs of the poor caused by the existing gap in the financial services sector. Community members who are members of a Community Saving and Loaning (CSL) group are able to obtain loans out of their savings for various small financial needs with agreed rates and modes of repayment.

These soft loans have been modelled to enhance the payment ability of community members and their access to energy-efficient cooking. The households can pay within a flexible mechanism, which has led to an increase in the demand for the Tembea stoves and other assets by community members. The CSL groups are essential for the promotion of efficient cook stoves in Siaya County: So far, around 70 per cent of stoves have been purchased through this saving and loaning mechanism.

Interested individuals join groups and make a request for efficient cook stoves to Tembea. myclimate’s project partner pays for the cookers for them and these groups can pay this loan back interest-free within 100 weeks. Through membership in a CSL group, the people in the project region become responsible and learn how to handle money.

"We are financially more independent", says a community member. Now they can even afford high-quality seeds for planting, medical healthcare and school fees for their children. Finally, microfinance groups lead to the financial and social empowerment of women, households and communities and create a platform for holistic community development.

Benefits

The new cook stove offers multiple benefits for the stove users. It reduces firewood consumption by 40-50 per cent, thus reducing the burden of firewood collection for women and children. Additionally, the stove also relieves the household’s budget for fuel purchases. “We no longer need to take the long and strenuous route to collect firewood for cooking“, says a woman from the community. With the old cook stoves they had to spend many hours per week collecting firewood. With the new Tembea stove it takes them about half the time.

Furthermore, emissions are reduced and indoor air quality is considerably improved through the cleaner and more efficient combustion of harmful smoke. Respiratory infections and eye complications amongst women and young adults, especially girls, are expect-
ed to decrease. The improved health conditions also reduce the household expenditure on medication and treatments.

In addition, the Tembea stove is safer than traditional cook stoves, which use open fires and cause serious burns to women’s and children’s skin.

The project has also enhanced gender equality amongst rural communities, as it strengthens the position of women and young girls in the families and communities. By reducing the time for fetching firewood, more time is available, for example, for studying and engagement in development projects.

In correspondence with the decreased demand for firewood, the project has led to a reduction in the cutting of trees. This counteracts further deforestation and thereby protects local vegetation. Furthermore, the project includes climate change education in schools to ensure high levels of awareness.

The project has created demand for locally available raw materials and services for the construction and installation of the efficient cook stoves. As a consequence, many people are seeing an economic benefit. The project provides the community’s youth with opportunities for employment. Over 70 adolescents and community members are directly engaged as artisans, field officers and technical staff in the project. Others are employed in the transportation of raw materials.

**Monitoring**

A precondition for a carbon offset project certified under the Gold Standard is the existence of a stringent monitoring of the parameters used for emission reduction calculations and of sustainability indicators. This guarantees measurable and real savings of CO₂ and a concrete contribution to local sustainable development. Parameters monitored include firewood consumption, improvements in indoor air quality, time or financial savings due to reduced fuel consumption, training of artisans, number of persons participating in saving and loaning groups as well as the number of people gaining an income from the project activity.

The monitoring coordinator at the Tembea Youth Centre for Sustainable Development is responsible for accurate and transparent record keeping, quality control, household interviews and field tests. Moreover, each household with an efficient cook stove is listed in a sales record, which contains data such as GPS coordinates, stove number and the name of the stove user. This allows the unique identification of each project stove installed in Siaya County.

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