

Energy-Efficient Cooking Stoves, Lesotho

Key Facts	
Project	Energy-efficient stoves
Project Developer	GTZ's Programme for Biomass Energy Conservation (ProBEC) and the World Food Programme
Location	Lesotho, Southern Africa
Type of offset	Verified Emissions Reduction (VER)*
Vintage: The year the emissions reductions will take place	2007 - 2010
Quantity	15,000 tonnes of CO ₂
Project Verifier	To be confirmed



Background

In the majority of the developing world heat for cooking is provided by biomass, normally in the form of wood, charcoal or animal dung. Traditional open fires tend to be smokey. As cooking is usually done indoors this leads to significant respiratory problems. This results in more than one and a half million deaths a year – mostly amongst women and children. Millions more suffer from chronic lung disease.

Cooking on an open fire is also very inefficient. Most of the energy in the wood is lost rather than being transferred to the cooking pot. In many places in the developing world wood is being consumed more quickly than it is being replenished. The burning of this non-renewable biomass is a significant contributor to the global warming crisis.

An improved cooking stove is designed to use less wood and emit less smoke. Such stoves have three important benefits: firstly, the social benefit of improving health, secondly the global environmental benefit of reducing greenhouse gas emissions, and thirdly the local environmental benefit of reducing pressure on wood reserves. It is estimated that in order to reach the Millennium Development Goals 500 million people around the world need access to improved cooking stoves.

The Project

The project focuses on the use of a highly effective and field-proven technology called the Rocket Stove, designed by the Aprovecho Research Institute in Oregon, USA. This stove has been developed further in wide-spread practical applications by our project partner ProBEC, an arm of the German Development Corporation, GTZ. ProBec is active in Southern Africa improving the use of biomass and has run a successful project in Malawi training local artisans how to build the Rocket Stoves. The stoves can be manufactured from locally available materials. The innovative “rocket elbow” in the stove ensures near complete combustion of the fuel used (including secondary combustion of the off-gases) and highly efficient transfer of heat to the cooking pot. In some cases a 90% reduction in the amount of fuel needed to cook for 100 people has been measured.

* Verified Emission Reductions (VERs): A unit of greenhouse gas emission reductions that has been verified by an independent auditor, but that has not yet undergone the procedures and may not yet have met the requirements for Certified Emissions Reductions under the Kyoto Protocol (www.unfccc.int).

Wood needed to cook one meal for 120 people



On an open fire: 120kg



On a rocket stove: 14kg

The project will introduce the stove to 550 schools and orphanages in Lesotho. The people of Lesotho suffer from a serious shortage of fuel wood, which has to be imported from outside the country. The project team will work with schools and orphanages because they have a large demand for wood fuel.

Following the project model proven in Malawi, ProBEC will train local artisans on how to build the rocket stoves, which will be adapted to fit the current cooking pots. Training on how to use the stoves will be given to the cooks. New cooking and wood storage facilities will also be built where necessary.

It is estimated that each stove will save approximately ten tonnes of CO₂ emissions per year, depending on the number of people it is used for. Each stove will have a life of four to five years, but to be conservative, we have calculated overall emissions based on a predicted life of three years.

Project benefits

- The main global benefit will be a reduction in CO₂ emissions arising from burning of non-renewable biomass.
- A local benefit will be a reduction in the amount of wood taken from the local landscape, which is being harvested unsustainably.
- The improved stoves will significantly improve indoor air quality and therefore improve the health of the cooks.
- The programme will develop new skills in the local economy.

Methodology, standards and verification

Climate Care has developed a methodology for projects that reduce emissions from non renewable sources of biomass. Climate Care and GTZ have undertaken to:

- Inform the host government of the project activities.
- Carry out local stakeholder consultation.
- Implement the project following the principles of the Clean Development Mechanism (CDM) under the Kyoto Protocol. For more information on the CDM, please go to the UN Framework Convention on Climate Change website (www.unfccc.int).
- Apply a rigorous baseline methodology.
- Carry out a full additionality assessment to demonstrate that the benefits arising from the project would not have occurred without the project funding.
- Carry out a monitoring methodology and plan suitable for the project; and
- Have the project validated and emissions reductions verified by an independent body, accredited by the CDM (a Designated Operational Entity).