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# Using biogas technology, farmers in Eritrea help reduce greenhouse gas emissions



Samii

Biogas plant

all year round. Electricity generated by biogas lights the lamps that allow children to study in the evening. It frees women from the time-consuming chore of collecting firewood and enables them to undertake value-added activities. And thanks to biogas fuel, rural kitchens are now free of smoke and ash, for a healthier household environment. As fertilizer, the organic residue that is an end-product of the biogas process boosts the productivity of agricultural plots. In Eritrea, IFAD helps farmers build biogas units and reap

developing countries with clean and renewable energy

Biogas provides poor rural women and men in

the benefits of green technology.

Biogas units are becoming more and more widely used in rural areas of developing countries. Because biogas units are environmentally friendly and do not require large investments, biogas has the potential to become the 'fuel of the poor'.

#### How does a biogas unit work?

Biogas units turn organic waste material into energy. Biogas from animal dung provides a free, alternative and renewable source of energy. Eritrea is one of a number of developing countries that are embracing this alternative source of energy and building small biogas units.



Photo credit: Roxanna

The IFAD-funded Gash Barka Livestock and Sami Agricultural Development Project (GBLADP) has Gas being channelled helped Tekie Mekerka, an Eritrean agro-pastoralist, build a pilot biogas unit. Construction of the unit began through pipes to Mekerka's kitchen in July 2007 and was completed in October of the

same year. Now Mekerka collects the dung of his 30 cows and takes it to his on-farm biogas pilot unit.

"Every day I take three wheelbarrow-loads of cow dung and mix it with water. The mixture is then channelled into the fermentation pits," Mekerka explains. "The pits are properly dug. We used concrete and cement to make sure they are airtight."

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Mekerka's daily efforts and the fermentation process combine to produce gas that is 65 per cent methane. It is collected in a storage tank and piped directly to Mekerka's kitchen. Biogas provides the family with energy for cooking and lighting in an area where electricity is a luxury.

Photo credit: Roxanna Samii Ms Mekerka turning on her stove fuelled by biogas

"Thanks to the gas that is produced, we no longer have to go out to collect wood for cooking, the kitchen is now smoke-free and the children can we have electricity." Mekerka says

study at night because we have electricity," Mekerka says.

"The residue cow dung is then used as fertilizer. This is absolutely great, because it has allowed the family to make a vegetable garden," says Mekerka. The family cultivates peppers, lettuce, pumpkins, zucchini and other vegetables on the plot.

"Biogas has not only given us cooking gas, but it is also giving us more food thanks to the well-fertilized horticulture plot. And, more importantly, it is giving us light," says Mekerka.

## How does biogas technology help poor rural families?

Biogas technology helps improve the livelihoods of poor rural people and contributes to the reduction of greenhouse gas emissions. The use of biogas helps minimize carbon emissions caused by burning fuelwood and by the natural decomposition of organic waste. This alternative form of energy also reduces



Photo credit: Roxanna Samii Mekerka's vegetable garden

the use of fossil energy. It helps improve sanitation conditions because cattle dung is no longer burned to generate power but is channelled into biogas digesters. Biogas plants also produce organic waste that is dried and used as fertilizer.



"The technology has a great potential, and we hope to expand the use of similar biogas units to other farmers in Logo Anseba," says Taddese Kefle, animal production expert.

"It is encouraging to see small-scale farmers, agro-pastoralists and pastoralists embracing good environmental principles and contributing to

Photo credit: Roxanna Samii Mekerka's smoke-free kitchen

reducing greenhouse gas emissions," says Abla Benhammouche, IFAD country programme manager for Eritrea. "Together with the government, we are working to build the capacity of local institutions and farmers by sensitizing them to these issues so they are better equipped to cope with their daily challenges."

Source: IFAD