GEF Small Grants Programme
Site Visit Project Fact Sheet
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Use of Biogas Digesters as an Alternative to Fire Wood in Rural South Africa

Project No: SAF/SGP/op4/RAF/07/03
Grantee: Trade plus Aid - Africa
Location: Phateni, Richmond; Kwazulu Natal Province
SGP Contribution: 50,000 USD
Cash Co-Financing: 4,061 USD
In-Kind Co-Financing: 5,000 USD
Project Duration: 12/2007-12/2008
Number of people served: 90
Focal area: Climate Change

Background

The project was driven by the need to introduce alternative energy sources to wood fuel among Southern African communities. Biogas was identified as an appropriate technology because it is easy to build and operate, and can reduce the domestic burden on women. In addition, the project provided an opportunity to raise awareness about climate change issues, prevent deforestation and create a positive influence on health and sanitation issues. The area of Richmond was identified by the NGO partner, Trade Plus Aid, as an ideal area to begin the roll out of bio-digesters, in view of its abundant livestock to provide animal waste, as well as good access to water supply.

Project Objectives and Key Activities

The project goal was to introduce alternative energy sources to the use of fossil fuels in rural South Africa and to demonstrate the cost effectiveness of using biogas to address climate change and deforestation while improving the livelihoods of the community. The initiative also aimed to raise awareness about the need to move towards more sustainable energy sources and away from wood fuel for daily cooking and heating.

With support from the Global Environmental Facility's Small Grants Programme (GEF SGP), implemented by the United Nations Development Programme (UNDP), Trade Plus Aid worked in partnership with an existing training facility, the Zakhe Agricultural College in Baynesfield Estate Farm, Richmond, which was responsible for assisting the local community in understanding and using biogas as an alternative to wood fuel.

In the course of the implementation of the project, Trade plus Aid and the College initiated the construction of 10 domestic biogas digesters in Pateni, Richmond as well as one demonstration site in the college, which has been used as a training unit and learning center for the community and now receives over 1,500 visitors per year. The main activities of the project included: conducting a research study on energy use and socio-economic conditions, providing training on the construction of biogas digesters to community members, construction of biogas digesters and constant monitoring of the technology.

Environmental Impact

Through the project 10 families received training and support for the construction of domestic biogas digesters that provide energy for cooking, thereby reducing their use of fuel wood and associated CO2 emissions. Prior to project implementation, each family was using 4.5 tons of fire wood per family a year. The installation of the biogas digesters in 10 households have consequently avoided the use of 45 tons of fire wood annually, and lead to a reduction of 7.5 tons of CO2 emissions.

The programme was implemented in collaboration with the "One home, One garden" programme of Zakhe Agricultural College, as a way to use the bio-slurry residue from the biogas, which is rich in nutrients, as fertiliser for household gardens and help address the issue of food security for the families in the community. As a result, the project was able to further reduce tree cutting and deforestation, and contribute to the reduction of greenhouse gas emissions.

Socio-Economic Impact

Households saved an average of US$20 dollars monthly on the purchase of fuel as they switched to biogas energy stoves. Local community members received training on how to build biogas digesters, a skill that will increase their income generation alternatives and their capacity to replicate the model in other communities. In particular, the project created 14 temporary jobs.

Most notably, the project contributed to improving the quality of life of the families. The use of biogas digesters allowed participants to have more time to devote to other activities instead of collecting fire wood and reduce their reliance on wood. One of the project participants described the impact on her day-to-day life as "having received an additional 2 hours per day – every day" as she no longer had to worry about collecting wood for household cooking. As a result of the sustainable management of cow dung and grey water that are fed into the biogas, the community also benefitted from an improvement in hygiene and sanitation.

Gender Mainstreaming

Women benefited from reduced air pollution from burning wood indoors and reduced time spent collecting fuel wood from the mountain, thus, improving their quality of life by providing a healthier environment and additional time to devote to other activities.

Replication and Up-scaling

It is calculated that rural households in South Africa consume approximately 3 tons of wood fuel per year per household, and as demonstrated by this project, the installation of household biogas digesters can help reduce the use of wood fuel. However, wider upscaling and replication of the success of the GEF-SGP project is challenging given the absence of the required financial resources in African rural households for the installation of biogas digesters, and in the absence other financial mechanisms.

Trade Plus Aid has initiated a TPA Commercial Biogas Programme to install and operate large biogas digesters to help capture the greenhouse gas emissions of commercial swine farms throughout South Africa as a registered Programme of Activities under the United Nations Clean Development Mechanism. Trade Plus Aid plans to use revenues generated from the sale of CERs through this commercial biogas programme, currently under execution, to finance the extension of a domestic biogas programme. In addition, the college is currently translating training materials in the local language which will help to further replicate this technology among other communities.

Lessons learned

Trade Plus Aid has learned that the implementation of similar projects requires an investment to support the capacity development of the recipients of the biogas digesters. While the use of digesters can be self sustaining in the long term when operated correctly, the involvement of households initially requires significant support at the beginning of the project. In this regard one of the key innovations of the project has been its partnership with a local institution, the Zakhe Agricultural College, for providing training and overall support for the project. This collaboration has strengthened the follow-up to, and sustainability of the project results. Also important was to have a person fluent in the local language, isiZulu, to work closely with the beneficiaries at all times.