

# Sustainable Energy for Brazil's Rural Poor

Winrock International

Improving Lives and Livelihoods Worldwide



Biodigestion technology brings multiple benefits to the northern and northeastern Amazon regions.

While many of Brazil's poor people live in urban shantytowns, many more live in remote rural areas of this South American country—the world's fifth-largest. The millions of people existing from subsistence farming, beyond the reach of electric-power grids, would benefit greatly from access to low-cost, sustainable, non-polluting sources of energy for household and agricultural use.

Winrock's Clean Energy unit has addressed this issue through its Brazil Productive Energy Project, which focuses on the northern and northeastern areas of the Amazon region, here the greatest need and greatest potential exists. One of the project's most innovative approaches involves the use of biodigestion technology: turning livestock manure into gas that can be used for cooking, lighting, and other needs.

Biodigestion has been growing in popularity in Brazil for some time, but has been applied mostly in the more-developed southern parts of the country. Through the Productive Energy Program, the benefits of the technology are being spread to farmers in the poorer Northeast.

In the state of Bahia, an agricultural community of 40 families needed a clean, renewable energy source with which to dry their cacao beans, replacing the wood they had been cutting in native forests. In addition, they needed a low-cost natural soil fertilizer for the cacao trees on their plantation, which has been certified organic.

In conjunction with Jupará, a local nongovernmental organization, and Sansuy, a plastics manufacturer, the Productive Energy program installed two biodigesters that will operate on the manure from a herd of 60 cattle. The organic material remaining after gas production is used as fertilizer. The project has received the attention of the National Institute for Agrarian Reform, which approved financing for training courses on biodigestion installation and operation for members of six additional settlements, with the prospect of developing new job opportunities for young people in the area.

Farther inland lies Brazil's *sertão*, a harsh, arid region that is home to thousands of poor farmers, many of whom live off raising goats and sheep. Often, the animals are in poor condition because of limited access to water and forage, and in places the farmers suffer an annual loss of up to 40%

of their herds because of parasites spread through manure.

Winrock assisted in the installation of a biodigestion unit at an agricultural experimental station in Jaguarari, Bahia, which has no access to electricity from power grids. Designed for a typical herd of 150 goats and sheep, the unit produces biogas that has replaced consumption of both butane and of wood and is meeting the station's cooking, lighting, and milk-pasteurization needs. The next step will be to purchase a gas refrigerator that will preserve the milk for longer periods. The fertilizer remaining after gas production is being applied to fields to increase the growth and food value of forage plants.

Because of the Jaguarari project's success, Winrock was invited to demonstrate biodigestion technology at AGRIFAM, Brazil's largest family agriculture fair, in Irecê, Bahia, in November, 2004. Here, 46,000 visitors had the chance to see and ask questions about the family-sized biodigester installed in the fair's model farm.

At the close of the fair, the biodigester was donated to and installed at the local agricultural school, which has 85 students from several municipalities in the region, to serve as a working example of biodigestion integrated in a farm's production cycle.



Workers prepared the biodigester for installation.

Winrock International is a nonprofit organization that works with people in the United States and around the world to empower the disadvantaged, increase economic opportunity, and sustain natural resources.