



Viet Nam: Boosting Biogas

Loan-2513 VIE: Quality and Safety Enhancement of Agricultural Production and Biogas Development

This project provides credit to rural households for the construction of household biogas digesters that use animal waste to generate clean fuel for cooking.

Challenge:

Viet Nam's fast growing livestock sector poses a challenge to the environment and to human health. Piggeries compose 80% of the sector and pigs produce six times more waste than humans. With many of these piggeries belong to small farmers with no proper waste disposal system, farmers resort to dumping waste in surrounding lands, and often into nearby streams or rivers. It is a large scale problem - each year an estimated 70 million tons of waste are improperly disposed of in Viet Nam. This contaminates surface water, ground water, the soil and affects the quality and safety of agricultural products. Instead of dumping, animal waste can be put to use generating energy. Biogas technology is simple and effective, but cost is a major barrier. Affordable and accessible energy can still remain out of the hands of the poor if the initial investment cost is too high.

Project Design:

Project Background

- The original project design focused on agricultural quality and safety. The biogas development component was identified and added later in the project cycle.
- This project builds upon a successful biogas program that the Government of Viet Nam has been implementing since 2003 with technical assistance and financial support from SNV Netherlands Development Organization. Between 2003 and early 2009, 60,000 household scale biogas systems were installed across 11 provinces of Viet Nam.

Technical Details

- Biogas digesters provide clean fuel, primarily for household cooking and lighting, while sequestering animal wastes.
- Organic waste is fed into the digester, a sealed pit over which a fixed dome is set.
- Anaerobic digestion of the material is carried out by bacteria, which generates biogas as a byproduct.
- Through this process of anaerobic digestion, most waste pathogens such as parasites, bacteria and salmonella, are destroyed, leaving behind an organic slurry.
- A household with just a few head of livestock can generate enough biogas to meet much of their cooking needs, supplanting kerosene or wood fuel.
- A typical household digester costs between \$520 and \$550 – unaffordable for many small-scale farmers.

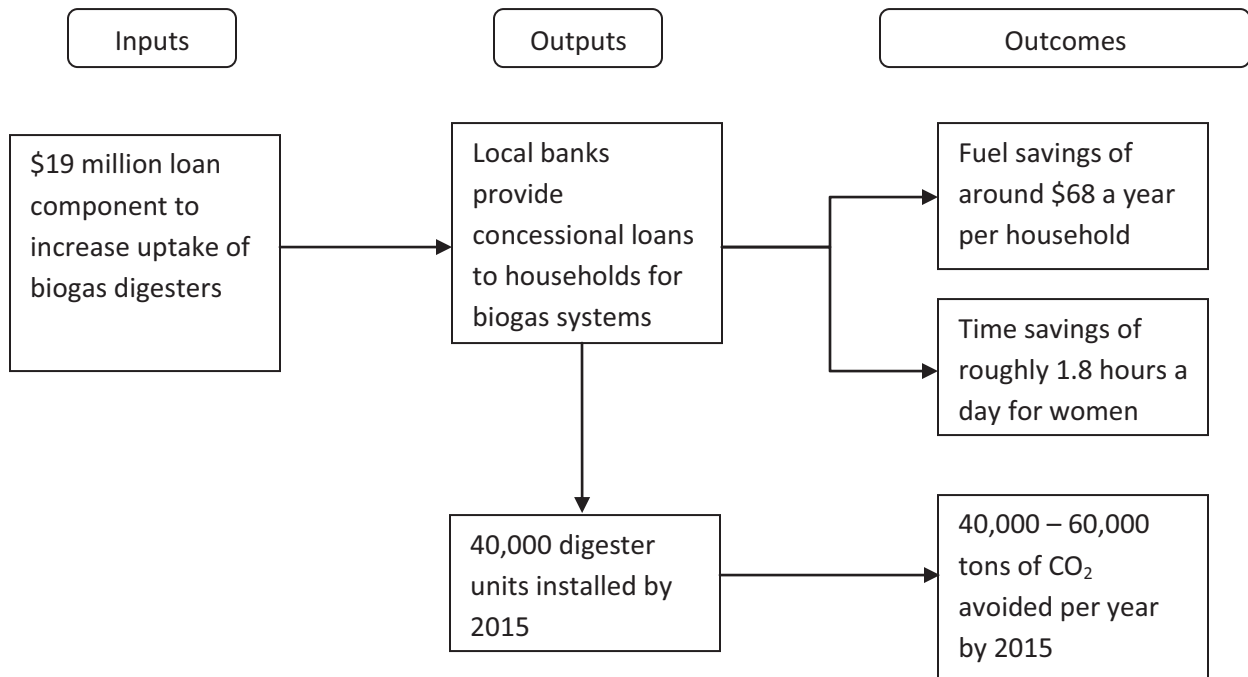
Energy for All

Scaling Up the Program

- The current biogas program has SNV and the provincial government providing a subsidy of 1.2 million dong (D, \$68), which is around 13% - 15% of the digester cost.
- The ADB project replicates and scales up this program, boosting biogas infrastructure while adding a \$19 million credit and subsidy component to increase the ability of the poor to access these digesters.
- SNV will continue to extend financial assistance to households and technical assistance for training in digester construction.
- ADB and SNV's combined efforts and financial assistance will facilitate the installation of 40,000 biogas units by 2015, while expanding the overall reach of the program to an additional 5 provinces. Sixteen of Viet Nam's 63 provinces will benefit from biogas digesters.
- The subsidy provided by ADB will extend to 20,000 biogas systems and will follow the output-based aid approach; i.e., the subsidy will be provided after the biogas systems are installed and certified to be operating correctly.

Improving the National Biogas Program

- The credit component was added after a household survey found that a shortage of capital was the biggest constraint in buying a biogas unit.
- This line of credit will be managed by local partners experienced in the rural sector who will act as financial intermediaries.
- Biogas borrowers will receive a fixed concessional interest rate
- The project also supports the improvement of biogas technology for use in medium- and large-scale biogas plants in order to benefit SMEs as well as households.
- The installation of 40,000 biogas digesters will reduce CO₂ emissions by 40,000 – 60,000 tons per year as biogas use displaces kerosene or biomass burning among households.
- Reduced use of these fuels saves each household an estimated D1.2 million (\$68) per year, and saves women an estimated 1.8 hours a day as they no longer have to travel to procure kerosene or wood.



Lessons Learned:

- Credit offered at fair rates increases the take up of sustainable energy
 - Farmers highly value biogas digesters, and some can find ways to borrow money to have their own constructed. For others, credit to offset the cost of construction is needed to support access.
- Tapping local finance institutions is key to deepening their involvement in the sustainable energy market
 - These local financial institutions are exposed to the biogas market, and gain technical know-how to assess clients and develop appropriate loan products.
 - This leverages additional local, commercial resources as they gain confidence in lending.
- Beneficiaries may seek energy, but there are multiple priorities at work in their decisions
 - While many households install biogas digesters because they value cleaner fuel and savings in time and money, others prioritize their cleaner surroundings
 - In Viet Nam, the farmers see the prime benefit of the digesters to be the cleaner surroundings which are freed of the smell and flies that characterize a piggery.
 - Appropriate information campaigns need to be designed to promote the benefits that resonate most with target beneficiaries.

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Energy for All Initiative: <http://www.adb.org/Clean-Energy/energyforall-initiative.asp>

Read "Powering the Poor" the book that inspired this showcase at:

<http://www.adb.org/documents/books/powering-the-poor/default.asp>