

Converting waste to energy



Medium scale biogas in central Kalimantan



There are more than 15 million cows and around 1.4 billion chickens in Indonesia. That's a lot of waste!

It also represents a veritable payload of potential energy. While being an important source of food and income, the waste from these animals pollutes waterways and generates millions of tonnes of greenhouse gas emissions. The potential to harness energy in the form of biogas is enormous, and to date largely untapped despite energy shortages and a heavy reliance on wood burning stoves in many areas of Indonesia.

Recognising the opportunity, SNV Netherlands Development Organisation with the financial support of EEP Indonesia, has implemented the project Market Introduction of Medium Scale Biogas Digesters in Pulang Pisau, Central Kalimantan.

Clean, green energy...

...is the aim of the project which promotes the development of a robust and cost effective medium scale biogas sector to improve access to clean and sustainable energy. This included:

- developing a design for reliable medium scale biogas digester that was practical for local conditions
- developing and testing a management system for community digesters

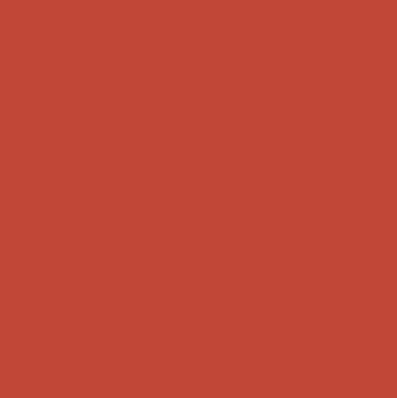
Ten 30 m³ digesters were constructed in Pulang Pisau. Each digester is capable of producing about 8,000 liters of gas every day, from about 225 kg of cattle dung mixed with an equal quantity of water. That's enough clean, green fuel for ten households to cook their daily meals. The digester design, vetted by national and international experts, is strong enough to withstand earthquakes.

Active participation and management...

...by the local community, was integral to the project design. There was widespread contribution and involvement especially from livestock groups, who actively participated in the construction and operation of the digesters. The local Government agriculture office helped mobilise the project and identify the potential site

for biogas project. A sustainable management system for these community digesters was also developed as it is important that users feed the digester regularly and check the stoves and pipes periodically for any leakages.

An estimated 415 people now have improved health due to a smokeless kitchen



Results that fuel clean energy...

...and put out the fires in the kitchen. As a result of this project 84 households are now able to access clean, sustainable biogas. And...

- An estimated 183 tonnes of fuel wood and 6 tons of LPG is saved annually
- Labor saving of two hours for each household per day due to less time collecting firewood and faster cooking and cleaning
- An estimated 415 people benefit from improved health due to a smokeless kitchen environment
- 820 tonnes of organic fertilizer available (bio slurry)
- An estimated 210 tonnes of greenhouse gas emissions reduced annually from the digesters
- Ten local masons are trained and ready for up scaling biogas digesters
- Users are trained on operation and maintenance as well as proper utilization of slurry
- A framework has been developed that provides a platform for replication including construction, operation, maintenance and monitoring manuals

Lessons learned...

...the community management system is the most critical of success factors. During the project we also learned there was a need to adjust the design for construction in peat land where typically the water table is high and to add lime to water when it is too acidic as it affects biogas production.

Looking for partners...

...to build a cleaner future. We believe that the digester design can be replicated elsewhere in Indonesia with the technical potential to build 30,000 medium scale biogas digesters fueled by animal manure. SNV is also testing other waste to energy options including palm oil mill effluent and tofu waste that could use a modified version of the medium scale digester.

Quality construction in line with the standards developed and appropriate management mechanisms with regular feeding of the digester are critical for success. Access to micro finance would also assist up scaling.

SNV is interested in working with development partners and government to scale up this pilot project.



SMART DEVELOPMENT WORKS

“After we have biogas, the women don’t need to search for firewood any longer. The kitchen has changed – not black, no smoke.”

Pak Parmin

“The first impression was really good. People are lucky, it is very helpful particularly for women. However, still there is many people that don’t have access

to biogas”
Pak Parno

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Supported by:

