

## Biogas: power from cow dung

*Practical Action is helping farmers in Sri Lanka install biogas units on their farms to convert cow dung into an alternative power supply.*

### Mr Ratnayake and Biogas

Four years ago almost half of Sri Lanka's energy consumption was biomass. The biomass most commonly utilised was wood, used mainly by poorer, rural inhabitants, for household cooking.



For farmers like Mr. HP Ratnayake this reliance on biomass fuels could have made a hard life even more difficult. The fuel wood he and his family relied on was becoming increasingly scarce and expensive. This was mainly due to the destruction of the forests as a result of the intensive farming practices being employed to meet the demand for food. Mr Ratnayake desperately needed an alternative, appropriate energy source to replace his costly existing one.

In 1996 Practical Action (then ITDG) undertook a country review and discovered that a viable alternative energy source had already been implemented in Sri Lanka over the last two decades. Unfortunately, due to the institutions active in its development working in isolation, poor systems being used, poor maintenance of equipment and bad project choice, only a third of the 5000 alternative energy units installed functioned properly. The alternative energy source in question was Biogas and it relied on nothing more than cow dung for its operation.

As a result of this review a Practical Action Biogas Project was started to improve the success rate of these units. It did this by co-ordinating their development on a national level, setting up demonstration units to help spread information about them, restoring abandoned units and training users to operate and maintain them. Practical Action also helped farmers like Mr Ratnayake to install biogas units on their farms to utilise the waste from their cows and obtain a free power supply. Now, with nothing more than cow muck Mr Ratnayake produces enough power to cook with, iron the laundry and provide heat and light his home without using a single piece of wood. The biogas technology he requires to do this is wonderfully simple.

First Mr Ratnayake's collects manure from his cows in a specially adapted cattle shed where they feed; he then mixes it with water and leaves it to ferment in a large concrete tank or pit.

Gas (of which 65% is methane) is produced as a by-product of this fermentation and Mr Ratnayake collects it in a simple storage tank (manometer) from where he can then pipe it into

storage tank (manometer) from where he can then pipe it into his house when he needs it.

One added bonus of using a biogas unit is that women and children, freed from fuel collection, the cleaning of smoke-blackened utensils and the disposal of animal waste, have gained around two hours a day which they can now employ elsewhere.

Around 80% now use this time for various income generating activities, which currently accounts for approximately 24% of their monthly income.

The other great benefit of using a renewable power source like biogas for Mr Ratnayake and his family is that there is very little waste from the process and it is environmentally friendly.



The dried manure left after the 'biogas' process is even richer than ordinary muck and makes a fantastic organic fertiliser for Mr Ratnayake's crops - which he can then sell at a higher price as 'organic crops'.

So now, thanks to cow manure and biogas technology, Mr Ratnayake and his family not only have free, sustainable power all year round - but a better income as a result.

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## Extra energy from biogas

Sakunthaladev Kathiravetpillai is 31 years old and lives with her husband and four children in Vattavaan, a rural district of Sri Lanka. The family income comes from the sale of milk from their cows. Each day Sakunthaladev and her daughters used to spend several hours collecting wood for cooking and heating water.



Practical Action were able to help the family by showing them how the waste from their cows could provide them with all the energy they need. The construction of a biogas plant at their home has transformed their lives. The plant produces methane gas from animal dung by adding water to the waste and letting it ferment. This gas produced can then be used to provide energy for cooking and lighting.

Sakunthaladev, freed from the daily drudgery of firewood collection, now has more time to spend on activities that generate income for the family. Also the organic waste from the plant improves the productivity of their vegetable garden.

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Sakunthaladev's husband has become skilled at installing and maintaining the biogas plant, making him crucial for the development of other plants in the area. In order to help make biogas a more widely used fuel Practical Action is also now working on setting standards for biogas systems in Sri Lanka.