

Biogas rediscovered

People in Vidarbha innovate to make biogas viable



While biogas schemes fail elsewhere in Maharashtra, Vidharbha farmers make plants work

In Vidarbha, farmers setting up biogas plants do not have large number of cattle. This disproves the official theory that cow dung scarcity was what failed the plants earlier

When Vijay Ingle of Chittalwadi village in Akola district decided to install a biogas plant at his dairy in 2010, everyone in his village thought the project was doomed. Biogas had failed to take off in Maharashtra's Vidarbha region despite the government promoting it as the cleanest and cheapest fuel for over three decades and offering subsidies for setting up the plant.

Besides, no one had heard of a biogas plant installed about half-a-kilometre from the house; it is usually set up in the backyard, close to the kitchen.

In neighbouring Tandulwadi village of Buldhana district, farmer Shyamrao Deshmukh had faced similar scepticism. As their joint family grew, the Deshmukhs had to relocate their cowshed to the village outskirts, about half-a-kilometre away. To cut down the growing expenses

on liquefied petroleum gas (LPG), Shyamrao Deshmukh decided to set up a biogas plant in the cowshed. He, too, found himself surrounded by people asking him to give up the project. The two farmers, however, stuck to their resolve and made the plants work. The success turned critics into believers.

Today, Chittalwadi has 15 working biogas plants. Tandulwadi has four. Several others also plan to install biogas plants and have applied for subsidies.

So far, officials had cited cow dung scarcity in Vidarbha as the reason biogas was not drawing a crowd, despite subsidies. But farmers setting up biogas plants in these villages do not own large numbers of cattle, disproving the official theory. They have found innovative solutions to the challenges that prevented farmers from accessing biogas.

Back to original plan

While struggling to overcome problems involving distance, Deshmukh approached scientists at Dr Punjabrao Deshmukh Krishi Vidyapeeth, an agriculture university in Akola that offers extension services. He was advised to install telescoping PVC pipe to build pressure in the gas tank and put the pipeline below ground with a gentle gradient for unhindered flow of gas to the kitchen. He was also told to install equipment for removing moisture from the pipeline. Deshmukh realised that to install the pipeline he would have to shell out more than the cost of the entire plant and lower his kitchen floor by around 60 centimetres.

Before deciding to give up, Deshmukh decided to go back to his original plan. He already had constructed a 2-cubic metre (cum) digester tank at ₹ 9,000 and installed a rubber pipe used for drip irrigation. Instead of laying it underground, he took the pipe to his house by securing it to tree branches

Sindhutai Tayade adds cow dung slurry to her plant through the feeder



overhead. It cost Deshmukh ₹ 1,000. To trap moisture, Deshmukh twisted the pipe into a loop at the source and secured it in that position; being heavier than gas, moisture settles within the loop and flows back into the digester. "Moisture, which the university official had warned would be the problem, has not troubled me so far," Deshmukh says. The plant provides enough gas to cook for his family of six all year round.

Success lies in bifurcation

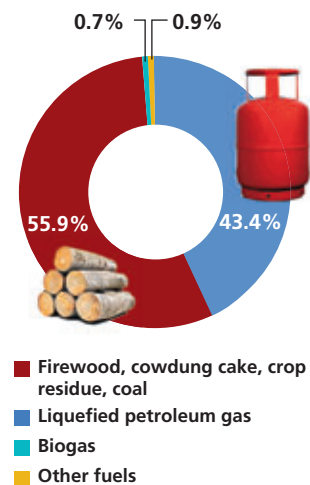
Ingle too had approached the university for guidance but to no avail. Then he approached an agriculture input dealer, who suggested that he use rubber tubes used in LPG cylinders. "My brothers and I had spent ₹ 1.75 lakh for constructing four 6 cum digester tanks," says Ingle. "Installing that kind of a pipe would have cost us another ₹ 1.4 lakh, which was impossible." Like Deshmukh, Ingle used a drip irrigation pipe, running overhead. But he bifurcated it at the source with a T-section.

One branch carries the gas to the house, while the other heads vertically downwards to a nozzle. "I open it once a week to drain out moisture," he says. Apart from providing enough gas for cooking and heating bath water for 22 people, Ingle's plant also provides enough gas for extra cooking for about 100 people three to four times a year during festivals, processing of 100 litres of milk products in the dairy every day, and lighting the cattle shed. "We are left with surplus gas and plan to install a generator to supply power to the house," says Ingle. His joint family now saves ₹ 80,000 per year on LPG cylinders. Most of the 15 farmers in Chittalwadi who used Ingle's innovation own not more than three to four heads of cattle.

"Initially, we were reluctant as the conventional biogas plant design requires

FUELS USED FOR COOKING IN MAHARASHTRA

Total no. of households
23,830,580



Source: Census 2011



Vijay Ingle stirs the slurry in the biogas digester tank

Farmers now require guidance to make innovations

a large amount of dung,” says Sindhutai Tayade, who owns four heads of cattle. “But when we found that Ingle’s plant works just by using dung from 10 to 12 animals, that too on alternate days, we thought it could work for us too.”

Milind Ingle, another farmer from Chittalwadi, was surprised to find that dung from his three cows was more than enough for his family of three.

The innovations are fast spreading to nearby villages where people are rediscovering biogas. Manohar Kokate of Shirla village in Akola says some 50 biogas plants were installed in the village in the 1980s when the government introduced biogas under a national project. Most of these plants closed down within a decade after cattle numbers dwindled in the arid region. Now, with the government introducing the smaller Deenbandhu model of biogas plant and innovations by several farmers, people want biogas again, Kokate adds.

Government must step in

Farmers feel that guidance for installing biogas plants and associated innovations is a pressing need. One area of improvement

is transporting gas from a distance. In most villages, with families multiplying, cattle sheds are located away from the homestead. “The gas pressure is influenced by distance, topography, as well as the number of twists and turns in the pipeline,” says Ingle. “What works for one may not work for others. It took me two months to work out how often I need to feed dung to the plant to maintain uniform gas pressure. Also, there is no guidance on the kind of pipes to use. Metal and PVC pipes are expensive and need to be laid underground,” he adds.

The government should also raise the subsidy bar, says Ingle. The current subsidy of ₹ 8,000 is for a 2 cum plant, which generates just enough gas for cooking. To meet all domestic fuel needs of a family of five to seven members, one needs a 6 cum tank.

With rising LPG prices and firewood getting scarce by the day, the number of farmers willing to go for biogas is on the rise in Vidarbha. All they need is a little support from government and financial institutions.

