

From Kitchen to Field: Biogas Transforms the Lives of Indian Families

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The scorching heat of inflation that has burned every common household across the country has reached the tribal areas of Rajasthan as well. When LPG cylinder prices began touching the sky and firewood became scarce as forests shrank, the villages of Palibada, Sasawadla, Loharia, Maskamohdi, Bachlipad, Dugariapada, Bijlpur, and Amlipad in the Sajjangarh tehsil of Banswara district found a path that not only solves the problem of the kitchen but simultaneously addresses farming, health, and the environment. That path is biogas.

Without understanding the geography and economy of this region, it is difficult to grasp the significance of this initiative. Most tribal families in Banswara depend on farming and animal husbandry. Maize, soybean, and cotton are the main crops here, but due to limited rainfall and hot, arid weather, growing a second rabi crop is extremely difficult. The lack of cash income was such that refilling a gas cylinder every month was a heavy burden. Meanwhile, water scarcity, uncontrolled grazing, and hot winds have reduced the region's greenery, making firewood increasingly hard to find. Women in the villages had to walk several kilometers on foot to collect firewood for cooking – paying the price with their time, labour, and health.

It was in these circumstances that Vaagdhara, an organization working for rural livelihood empowerment, intervened. The organization, through its Hiran, Mahi, and Mangarh units, supported the establishment of biogas plants in these villages. By 2025, a total of 280 biogas plants have been installed in the region, of which 40 new units were set up in the aforementioned villages in the year 2025 alone. Through training programmes, people were taught the simple structure of this technology: a pit into which a mixture of dung and water is poured, a dome-shaped chamber where gas accumulates, and a pipeline that carries the gas directly to the kitchen stove. The technology was new, but not complex, and within a few months it



became a natural part of villagers' daily lives.

The results have been striking. Sarita Rakesh Damor, a woman farmer from Maskamohdi village, puts just fifteen kilograms of dung and ten liters of water into her plant every day and in return receives enough gas to meet her entire family's cooking needs without any additional expenditure. Sita Katara of Sasawadla village says "With the dung plant, there is no smoke in the kitchen now, food cooks faster, and the compulsion to wander miles through the forest is gone. Similarly, Thawarchand Hakri says Depending solely on LPG is not feasible given inflation and irregular income installing the dung plant has saved five thousand rupees in five months." Farmers like Parsing Munia and Dhansingh Katara are obtaining thirty kilograms of gas per day by mixing fifteen kilograms of dung with fifteen litres of water. From an economic perspective, each family is saving an average of five thousand rupees annually savings coming both from reduced LPG consumption and lower expenditure on chemical fertilizers. Across 280 families, this collective saving amounts to approximately fourteen lakh rupees annually money that earlier left the village is now being reinvested in children's education, healthcare, and agricultural inputs.

Another important by-product of the biogas plant is slurry the residue left after gas production. This is an excellent organic manure that improves the biological quality of the soil far more sustainably than chemical fertilizers. Farmers found that with regular use of slurry, soil fertility improved, crop quality enhanced, and the overall cost of farming decreased. This is the direct link between energy, agriculture, and livelihood that makes the decentralized energy model noteworthy from a policy perspective as well.

Perhaps the deepest impact of this initiative has been on the lives of women, who bore a double burden of inflation and fuel crisis. Standing for hours in smoke-filled kitchens, burning eyes, persistent coughing, and breathlessness all this was a normal part of their day. Biogas has changed this daily reality. The kitchen is now smoke-free, food cooks faster,

and the compulsion to roam miles for firewood is gone. The time saved is now being spent on children’s studies, farm work, or self-development. At the health level too, there has been a notable decrease in smoke-related ailments which may not yet have been measured in any official survey, but is on the lips of every woman in the village.

From an environmental perspective as well, this initiative is significant. When firewood consumption decreases, pressure on forests reduces; and when dung is used in a biogas plant instead of being burned or left to decompose in the open, methane emissions are also controlled. In this era of climate change, when every small or large effort matters, these villages of Banswara stand as an example of a practical and local solution.

Perhaps the most important aspect of this entire work is that this transformation was not imposed from above. Farmers took the initiative, women led the way, and the community collectively embraced it. Vaagdhara played the role of a catalyst, but the real change came from the hands that found solutions to their own problems. This is why the initiative is sustainable, and this is why it can serve as an inspiration and a reference point for other villages too. These villages of Banswara underline a simple truth: the path to true self-reliance can begin with something as ordinary as dung.

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