



BIOGAS FOR SUSTAINABLE ENERGY & ENVIRONMENTAL SUSTAINABILITY

GREEN ACTION PROJECT



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PEOPLE TO PEOPLE INDIA

Green Action Project Biogas for Sustainable Energy & Environmental Sustainability

Biogas is a promising renewable energy solution that can help reduce carbon emissions and provide cleaner fuel for cooking and other purposes. It has five-fold benefits local energy source, mitigation of environmental impacts, reducing methane (CH₄) emissions, producing organic fertilizer as a byproduct, and additional earnings for the farmers.

HPPI has been promoting use of biogas with farmers in Rajasthan, Haryana and Uttar Pradesh since 2010 and have so far established more than 1300 family size biogas plants. In March 2022, HPPI entered into a partnership with Webhelp India Private Limited with an aim of establishing 100 biogas plants in a year in the Behror and Neemrana blocks of district Alwar in Rajasthan. The programme aimed at establishing family-type biogas systems in operational areas with capacities of 2-3 cubic metre biogas per day. During the first few months the project team visited the farmers and families to explain them benefits of biogas. After a few months the first family came forward as a pioneer to setup a biogas plant. It increased curiosity among others. As the project is reaching towards its completion, the target of setting up 100 biogas plants has been achieved.

The glitter in her eyes!

Ushma and her husband Altaf never imagined becoming pioneers in adopting sustainable energy solutions in their neighbourhoods. When they agreed to set up a biogas plant at their house, they became an inspiration for others to follow their path.

Altaf, a resident of Dausad village in the Neemrana block of Alwar district, is a farmer. Altaf was initially not keen on installing a biogas plant at home. He also transports building materials to construction sites on his tractor. In March 2022, when the project team of Humana People to People India (HPPI) came to the village and explained benefits of setting up a biogas plant, Altaf was reluctant to avoid bearing the cost of setting up the plant at Rs 25,000. The amount of time and effort required for establishing the plant was also making him hesitant.

For installing a biogas plant, the HPPI team facilitates the connection between the farmers, mason and the construction workers. Especially skilled mason and workers are required for setting up biogas plants. After the construction is over, the project provides stoves and fittings along with providing training for using and maintaining the plant.

Continuous field visit and rounds of discussions from the HPPI team members resulted in Altaf agreeing to set up a biogas plant at his home. The plant's construction was completed in five days. While the plant was under construction, the family started gathering the droppings of the buffaloes they own and from neighbourhood to feed in the tank.



Within a fortnight, the plant was ready to be fed. Altaf fed the tank with cattle dung and the plant started producing methane gas in a couple of days. With the financial support of the project, the biogas-powered stove and pipe fittings were installed. The family started preparing food on the biogas stove. LPG cylinders, firewood and mud stove were not required anymore.

With a sparkle in her eyes and joy in her voice Ushma said, "I do not even look at the mud stove anymore. Thankfully, I got rid of the smoke. I do not need to collect firewood or make cow dung cakes. Now she has enough free time to stitch clothes for herself and her family members. On my request Ushma and Altaf came together to pose for a picture. I asked them to smile, Ushma complained, "Ma'am, he never smiles!" and just then, a shy smile lit up Altaf's face.



Saved time and money, made life easier!

At a short distance from Altaf's house lives his uncle, Sunni Khan. When Altaf had set up a biogas plant, Sunni Khan's wife Rekha saw its utility. She was keen on setting up one at her house as well. Knowing the one-time cost of Rs 25,000 for setting up a biogas plant, she was hesitant in sharing her desire to set up a biogas plant with her husband. Sunni Khan had an extremely busy routine. Extracting mustard oil from Kachchi Ghani, sorting the grain during harvest and making quilts and mattresses kept him occupied for most of the day. It took him time to realise that Rekha was keen on setting up a biogas plant. At last, he sensed it and agreed.

Soon the work for setting up a biogas unit started. In five days, the plant construction was complete. His family and neighbourhood collected enough cattle dung to feed the plant. Soon his family also started cooking food on a biogas stove.

Sunni Khan and Rekha said, Installing the biogas plant has made our life much easier. Our family is free from the hassle of bringing firewood and cylinders. It not only saves the expense of filling LPG cylinders but the effort for getting LPG has saved. In the village, LPG cylinders are not delivered at home. LPG cylinder would cost us approximately Rs1000/ per unit and that too was used only to prepare tea and other small chores. We never prepared rotis or the cattle feed on LPG. Now we can prepare all the meals and animal feed on the biogas stove.”



Bio-slurry, better manure!

Dharmendra and Manju Devi live in Majri Kalan, a village in Neemrana. Dharmendra is a retired soldier from the Indian Army. He returned to his village early this year after retiring from the Army. He was familiar with the idea of biogas. He knew that setting up such a plant is economically beneficial, safe for the health of the women in the family and a better option in terms of environmental protection, but he was unaware of how to set up a biogas plant at home.

When project team reached out to him, he immediately agreed to build the plant. Soon, the biogas plant was constructed. Dharmendra brought a tractor trolley full of dung from the nearby gaushala (cowshed). He said, in gaushala the animals drop the dung on a concrete floor, hence it does not get soiled and remains clean for use.





After feeding the plant with dung, it took a few days to produce the gas. In the beginning, the plant started producing ammonia gas, which is not inflammable. A biogas plant should produce methane gas. He opened the tank, to release the gas and empty the plant. After that, he added a sack full of jaggery to the tank. Jaggery is inflammable and when mixed with cow dung, it helps in producing gas. In a few days, the plant started producing methane gas and functioning smoothly.

Dharmendra is particularly excited about the bio-slurry extracted from the biogas plant. He said, “people use cattle dung as manure, but that causes more losses than benefits. The unprocessed dung contains seeds, which leads to weeds on the farm and becomes a source of the crop-destroying termites. The bio-slurry is processed manure, which is much more beneficial in the fields.

Dharmendra's wife Manju Devi said, “I cook animal feed twice a day. It takes more time in comparison to regular food items. If I cook it on LPG, one cylinder does not last a month. Therefore, I used to cook it on a mud stove. The biogas plant has made it easier; it fulfills all the fuel requirements for the family.” Dharmendra has also bought a separate stove for cooking animal feed and has connected it to the plant.



Hot and fresh cooked meals to eat!

Ever since Mahendra and Suman of Mandala village set up a biogas plant in their house, the old mud stove in the kitchen is not used. Mahendra says, “Earlier the food was cooked once in the morning and once in the evening, Now, whenever I come home from the farm, I can get freshly cooked food to eat.”

Suman Devi told that in the morning her daughter-in-law goes to work in a school after preparing breakfast. In the afternoon when she comes home, Suman Devi prepares fresh chapatis for her to eat. They have started using the manure obtained in the form of bio-slurry in their vegetable beds. With a sense of pride, they offered us some bottle-gourd and radish, saying, the prepared vegetable tastes far more delicious than it ever did before.





Biogas for greater good

Jyoti Yadav is the sarpanch (the elected leader of local governing body) of the village Dausod. She was invited to the inaugural event of a biogas plant built at Ramsingh's house in the month of July. She immediately decided to set up a plant at her house as well. She lives in a joint family. Before setting up the biogas plant, her family used LPG gas for preparing tea and boiling milk. The food for family and the animal feed were cooked on a mud stove. Now, with biogas, everything is prepared on the biogas stove. Being a sarpanch, Jyoti started thinking for the greater good of the village.

Jyoti's husband Navratna Yadav is a former sarpanch of the village. He is currently associated with the Swachh Bharat Mission of the Indian Government. Under the mission, Navratna is planning to create better waste management and water recharge systems in the village. They both have started exploring the possibility to set up a public biogas plant in the village with the help of the Panchayat. Navratna says, "many people in the village want to set up a biogas plant, but they do not have enough land to set up a private plant. We can set up a public plant and purchase dung from the people to feed the plant @ Rs 2 per kg and sell the manure in return @Rs 5 per kg. That will make the plant sustainable. Jyoti and her husband firmly believe that once a public biogas plant is a setup in the village, people will want to use it and get benefits from it. The project has brought an eco-friendly change in the lives of many families, especially the women.



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